



PCT10

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:28

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

Does Not Comply
Corrected Diskette Needed

3 <110> APPLICANT: DSM N.V.
5 <120> TITLE OF INVENTION: Genes encoding enzymes in the biosynthetis of pimaricin and
applications
6 thereof
8 <130> FILE REFERENCE: S-2959
10 <140> CURRENT APPLICATION NUMBER: US/10/018,009
11 <141> CURRENT FILING DATE: 2002-04-16
13 <160> NUMBER OF SEQ ID NOS: 14
15 <170> SOFTWARE: PatentIn Ver. 2.1

ERRORED SEQUENCES

492 <210> SEQ ID NO: 2 1847(p.6) 4/6
493 <211> LENGTH: 1848
494 <212> TYPE: PRT
495 <213> ORGANISM: Streptomyces natalensis
497 <400> SEQUENCE: 2
498 Met Val Pro Val His Thr Asp Asp Tyr Ala Ile Gln Pro Pro Ala Asp
499 1 5 10 15
501 Thr Ala His Gly Gly Gly Gly Phe Thr Leu Pro Ala Val Phe Glu Ala
502 20 25 30
504 Ala Val Glu Ser Ala Pro Asp Ala Val Ala Leu Val Asp Gly Thr Val
505 35 40 45
507 Pro Gly Pro Gly Arg Met Trp Arg Ala Asp Val Asp Ala Leu Ala Arg
508 50 55 60
510 Gly Leu Gln Glu Ser Gly Ile Ala Pro Gly Asp Val Val Ala Val Arg
511 65 70 75 80
513 Leu Pro Asn Cys Gly Arg Phe Pro Thr Leu His Leu Ala Val Ala Ala
514 85 90 95
516 Val Gly Ala Val Leu Leu Pro Ile His Gln Gly Thr Pro Leu Pro Glu
517 100 105 110
519 Val Asp Ala Leu Leu Thr Arg Ala Glu Pro Ala Leu Leu Val Leu Ser
520 115 120 125
522 Ala Ala Gly Ser Asp Gly Leu Ala Thr Ala Arg Ser Leu Leu Glu Ser
523 130 135 140
525 Val Pro Ser Leu Arg Gly Val Leu Leu Ala Gly Ala Ser Gly Asp Gly
526 145 150 155 160
528 Glu Ser Gly Ser Val Gly Gly Gly Glu Ser Gly Ser Gly Arg Arg Ser
529 165 170 175
531 Leu Asp Gly Leu Leu Ala Gly Trp Ala Gly Ser Gly Pro Arg Pro Val
532 180 185 190
534 Asp Val Thr Pro Asp Met Pro Leu Val Leu Val Pro Ser Ser Gly Thr
535 195 200 205

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537 Val Ser Ala Arg Pro Lys Leu Cys Val His Ser His Asp Gly Leu Leu
538 210 215 220
540 Ser Asn Thr Ala Ala Val Thr Ala Glu Ala Ala Asp Ala Phe Asp Gly
541 225 230 235 240
543 Pro Val Leu Thr Ala Cys Pro Met Thr His Leu Phe Gly Leu Gln Ser
544 245 250 255
546 Leu His Ala Ala Leu Phe Ala Ala Cys Thr Gln Val Leu Leu Thr Gly
547 260 265 270
549 Trp Asp Val Asp Arg Phe Leu Glu Gln Ala Arg Glu His Gly Pro Arg
550 275 280 285
552 Val Val Phe Ala Val Pro Ala Gln Leu Arg Asp Val Val Thr Arg Leu
553 290 295 300
555 Ala Arg Thr Gly Glu Pro Ala Gly Phe Thr Pro Tyr Gln Val Arg Thr
556 305 310 315 320
558 Ala Gly Ala Ala Val Ala Pro Ala Leu Ala Val Arg Val Arg Ala Val
559 325 330 335
561 Leu Asp Cys Glu Leu Val Val Val Trp Gly Met Ser Glu Ile Gly Thr
562 340 345 350
564 Gly Thr Arg Thr Arg Ala His His Pro Asp Gly Cys Val Gly Glu Pro
565 355 360 365
567 Val Ser Gly Val Asp Val Arg Val Val Asp Glu His Gly Gln Glu Cys
568 370 375 380
570 Ala Ala Asp Glu Arg Gly Glu Leu Gln Tyr Arg Gly Pro Gly Leu Phe
571 385 390 395 400
573 Arg Gly Tyr Phe Arg Glu Pro Glu Leu Thr Arg Ser Ala Leu Thr Asp
574 405 410 415
576 Asp Gly Trp Leu Arg Thr Gly Asp Leu Ala Thr Val Asp Ala Asp Gly
577 420 425 430
579 Val Val Val Leu His Gly Arg Ala Ala Glu Leu Ile Asn Thr Gly Gly
580 435 440 445
582 Arg Lys Phe Ser Ala Gly Glu Val Glu Gly Leu Leu Ser Gly Phe Thr
583 450 455 460
585 Asp Leu Gly Pro Leu Ala Val Val Gly Ala Pro Asp Asp Arg Leu Gly
586 465 470 475 480
588 Glu Tyr Pro Cys Leu Val Val Thr Asp His Ala Asp Gly Thr Ile Gly
589 485 490 495
591 Leu Ser Glu Val Thr Ala Phe Leu Arg Arg Leu Gly Leu Ala Asp His
592 500 505 510
594 Lys Ile Pro Leu Glu Leu Val Thr Val Arg Glu Leu Pro Phe Ser Pro
595 515 520 525
597 Ala Gly Lys Leu Asp Arg Gly Ala Leu Lys Arg Leu Leu Ala Asn Leu
598 530 535 540
600 Ala Glu Val Ser Val Pro Ala Arg Leu Gly Ala Val Pro Pro Tyr Thr
601 545 550 555 560
603 Ala Glu Glu Ala Leu Asp Leu Val Arg Asp Cys Val Gly Arg Val Leu
604 565 570 575
606 Arg Tyr Gly Gly Ala Ala Val Pro Phe Pro Pro Asp Lys Asp Phe Phe
607 580 585 590
609 Ser Pro Asp Lys Asp Phe Arg Gln Leu Gly Leu Asp Ser Ile Gly Ala

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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 610 | 595 | 600 | 605 | | | | | | | | | | | | | |
| 612 | Val | Arg | Leu | Arg | Asn | Leu | Leu | Arg | Glu | Glu | Thr | Gly | Leu | Pro | Leu | Pro |
| 613 | 610 | | | | | | 615 | | | | | 620 | | | | |
| 615 | Ala | Thr | Leu | Ala | Phe | Asp | Ser | Pro | Thr | Pro | Arg | Ala | Val | Ala | Arg | Val |
| 616 | 625 | | | | | | 630 | | | | 635 | | | | | 640 |
| 618 | Leu | Ala | Glu | Gln | Glu | Glu | Pro | Ser | Gln | Asp | Glu | Pro | Arg | Glu | Asn | Pro |
| 619 | | | | | | | 645 | | | 650 | | | | | 655 | |
| 621 | Ala | Asp | Gly | Ala | Asp | Pro | Val | Ala | Ile | Val | Gly | Met | Ala | Cys | Arg | Leu |
| 622 | | | | | | | 660 | | | 665 | | | | | 670 | |
| 624 | Pro | Gly | Gly | Ala | Asp | Ser | Pro | Asp | Ala | Leu | Trp | Glu | Leu | Leu | Ala | Asp |
| 625 | | | | | | | 675 | | | 680 | | | | | 685 | |
| 627 | Gly | Thr | Asp | Ala | Met | Ser | Pro | Phe | Pro | Thr | Asp | Arg | Gly | Trp | Asp | Leu |
| 628 | | | | | | | 690 | | | 695 | | | | | 700 | |
| 630 | Asp | Arg | Leu | Phe | Asp | Glu | Asp | Ala | Asp | Arg | Pro | Gly | Thr | Ser | Tyr | Ala |
| 631 | 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| 633 | Arg | Glu | Gly | Gly | Phe | Leu | His | Asp | Ala | Gly | Asp | Phe | Asp | Ala | Gly | Phe |
| 634 | | | | | | | 725 | | | 730 | | | | | 735 | |
| 636 | Phe | Gly | Leu | Ser | Asp | Gln | Glu | Ala | Thr | Ala | Thr | Asp | Pro | Gln | Gln | Arg |
| 637 | | | | | | | 740 | | | 745 | | | | | 750 | |
| 639 | Leu | Leu | Leu | Glu | Ala | Ala | Trp | Glu | Thr | Phe | Glu | Arg | Ala | Gly | Ile | Asp |
| 640 | | | | | | | 755 | | | 760 | | | | | 765 | |
| 642 | Pro | Gln | Ser | Leu | Arg | Gly | Ser | Arg | Thr | Gly | Val | Phe | Thr | Gly | Ala | Met |
| 643 | | | | | | | 770 | | | 775 | | | | | 780 | |
| 645 | Asp | Arg | Gly | Tyr | Gly | Thr | Ser | Ala | Ser | Ala | Ala | Pro | Ser | Ala | Trp | Glu |
| 646 | 785 | | | | | | 790 | | | | 795 | | | | | 800 |
| 648 | Ser | Met | Leu | Ile | Thr | Gly | Thr | Ala | Gly | Ser | Ala | Val | Ser | Gly | Arg | Ile |
| 649 | | | | | | | 805 | | | 810 | | | | | 815 | |
| 651 | Ala | Tyr | Thr | Tyr | Gly | Leu | Glu | Gly | Pro | Ala | Leu | Thr | Val | Asp | Thr | Ala |
| 652 | | | | | | | 820 | | | 825 | | | | | 830 | |
| 654 | Ser | Ser | Ser | Ser | Leu | Val | Ala | Leu | His | Leu | Ala | Cys | Arg | Ser | Leu | Arg |
| 655 | | | | | | | 835 | | | 840 | | | | | 845 | |
| 657 | Ser | Gly | Glu | Thr | Asp | Leu | Ala | Leu | Ala | Gly | Gly | Val | Thr | Val | Met | Ala |
| 658 | | | | | | | 850 | | | 855 | | | | | 860 | |
| 660 | Thr | Pro | Ala | Pro | Phe | Ala | His | Phe | Ser | Arg | Leu | Arg | Ala | Leu | Ser | Pro |
| 661 | 865 | | | | | | 870 | | | | 875 | | | | | 880 |
| 663 | Asp | Ser | Arg | Ser | Met | Ala | Tyr | Ala | Asp | Ala | Ala | Asn | Gly | Ser | Ala | Trp |
| 664 | | | | | | | 885 | | | 890 | | | | | 895 | |
| 666 | Ser | Glu | Gly | Ala | Gly | Leu | Leu | Leu | Glu | Arg | Leu | Ser | Asp | Ala | Arg | |
| 667 | | | | | | | 900 | | | 905 | | | | | 910 | |
| 669 | Arg | Asn | Gly | His | Arg | Val | Leu | Ala | Leu | Val | Arg | Gly | Ser | Ala | Val | Asn |
| 670 | | | | | | | 915 | | | 920 | | | | | 925 | |
| 672 | Gln | Asp | Gly | Ala | Ser | Asn | Gly | Leu | Thr | Ala | Pro | Ser | Gly | Pro | Ala | Gln |
| 673 | | | | | | | 930 | | | 935 | | | | | 940 | |
| 675 | Gln | Arg | Val | Ile | Arg | Gln | Ala | Leu | Ala | Asp | Ala | Gly | Leu | Thr | Pro | Gln |
| 676 | 945 | | | | | | 950 | | | | 955 | | | | | 960 |
| 678 | Asp | Val | Asp | Ala | Val | Glu | Gly | His | Gly | Thr | Gly | Thr | Pro | Leu | Gly | Asp |
| 679 | | | | | | | 965 | | | 970 | | | | | 975 | |
| 681 | Pro | Ile | Glu | Ala | Gln | Ala | Leu | Leu | Ala | Thr | Tyr | Gly | Gln | Gln | Arg | Pro |
| 682 | | | | | | | 980 | | | 985 | | | | | 990 | |

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684 Val Glu Arg Pro Leu Trp Leu Gly Ser Val Lys Ser Asn Phe Gly His
685 995 1000 1005
687 Thr Gln Ala Ala Ala Gly Val Val Gly Val Ile Lys Thr Val Leu Ala
688 1010 1015 1020
690 Leu Arg His Gly Val Leu Pro Gln Thr Leu His Val Asp Ala Pro Ser
E--> 691 025 1025 1030 1035 1040
693 Ala Lys Val Asp Trp Ser Ala Gly Ser Val Arg Leu Leu Thr Glu Ala
694 1045 1050 1055
696 Arg Pro Trp Pro Arg Glu Ser Gly Arg Thr Arg Arg Ala Gly Val Ser
697 1060 1065 1070
699 Ser Phe Gly Leu Thr Gly Thr Asn Ala His Val Ile Leu Glu Ala
700 1075 1080 1085
702 Pro Gly Glu Ala Ala Ala Gly Ala Arg Ala Glu Val Pro Glu Glu Ala
703 1090 1095 1100
705 Arg Cys Ala Ser Ser Pro Ala Arg Leu Pro Glu Pro Pro Gly Asp Ala
E--> 706 105 1110 1115 1120
708 Ala Ala Pro Trp Val Leu Ser Ala Arg Ser Arg Ala Ala Leu Arg Ala
709 1125 1130 1135
711 Gln Ala Leu Arg Leu Ala Asp Gln Val Ala Ala Asp Pro Gly Leu Arg
712 1140 1145 1150
714 Ala Gln Asp Val Ala His Ala Leu Ala Thr Ser Arg Thr Leu His Arg
715 1155 1160 1165
717 His Arg Ala Val Val Ser Gly Ser Asp Arg Ala Gln Met Leu Ala Ala
718 1170 1175 1180
720 Ala Lys Arg Phe Gly Leu Gly Glu Arg Thr Ala Gly Val Thr Pro Asp
E--> 721 185 1190 1195 1200
723 Asp Ser Ala Pro Gly Leu Leu Ala Phe Val Phe Ser Gly Gln Gly Ser
724 1205 1210 1215
726 Gln Arg Ser Gly Met Gly Arg Ala Ala Ala Glu Ala Phe Pro Val Phe
727 1220 1225 1230
729 Gly Arg Ala Leu Gly Glu Val Cys Ala Ala Leu Asp Pro Leu Leu Thr
730 1235 1240 1245
732 Arg Pro Leu Thr Ser Val Met Trp Ala Ala Pro Gly Ser Glu Glu Ala
733 1250 1255 1260
735 Ala Arg Leu Asp Asp Thr Thr Tyr Thr Gln Pro Ala Leu Phe Ala Val
E--> 736 265 1270 1275 1280
738 Gln Val Ala Leu Tyr Arg Leu Phe Glu Ser Trp Gly Val Val Pro Asp
739 1285 1290 1295
741 Gln Leu Val Gly His Ser Val Gly Glu Ile Ser Ala Ala His Val Ala
742 1300 1305 1310
744 Gly Val Leu Gly Leu Arg Asp Ala Cys Thr Leu Val Ala Ala Arg Ser
745 1315 1320 1325
747 Arg Leu Met Gly Ala Leu Pro Pro Gly Gly Ala Met Val Ala Val Arg
748 1330 1335 1340
750 Ile Thr Glu Pro Glu Val Thr Pro Trp Leu Ala Glu Leu Thr Asp Glu
E--> 751 345 1350 1355 1360
753 Val Ser Ile Ala Ala Val Asn Gly Pro His Ser Leu Val Leu Ala Gly
754 1365 1370 1375
756 Ala Glu Ala Pro Leu Val Ala Leu Thr Asp Arg Leu Ala Ala Gly

(global
error)

When numbering
the first
amino acid on a
line, begin the
number directly
under the
first letter of
the amino
acid. Leave
a space after
the entire
number.

e.g. Leu |
1025 |
S | P | Arg
| A | C | E |

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Input Set : N:\jumbos\huge\10018009.raw
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| | | | |
|---|------|------|------|
| 757 | 1380 | 1385 | 1390 |
| 759 His Lys Thr Arg Arg Leu Met Val Ser Thr Ala Pro His Ser Pro Leu | | | |
| 760 1395 | 1400 | 1405 | |
| 762 Met Asp Pro Met Leu Glu Glu Phe Arg Ala Val Val Arg Thr Leu Ser | | | |
| 763 1410 | 1415 | 1420 | |
| 765 Tyr Ala Ala Pro Ala Val Pro Leu Val Ser Thr Val Thr Gly Arg Pro | | | |
| E--> 766 425 | 1430 | 1435 | 1440 |
| 768 Leu Thr Gly Glu Glu Ala Arg Asp Pro Asp His Trp Val Arg His Val | | | |
| 769 1445 | 1450 | 1455 | |
| 771 Arg Gln Ser Val Arg Phe Lys Asp Ala Ile Gly Arg Leu Arg Asp Glu | | | |
| 772 1460 | 1465 | 1470 | |
| 774 Arg Val Thr Gly Phe Leu Glu Leu Gly Ala Glu Pro Ala Leu Thr Pro | | | |
| 775 1475 | 1480 | 1485 | |
| 777 Met Ile Asp Glu Cys Leu Glu Ser Ala Asp Gly Gln Pro Gly Thr Ala | | | |
| 778 1490 | 1495 | 1500 | |
| 780 Leu Val Pro Ser Leu Arg Ala Gly Val Pro Glu Arg Asp Ala Leu Leu | | | |
| E--> 781 505 | 1510 | 1515 | 1520 |
| 783 Thr Ala Val Ala Arg Val His Ala Gln Gly Val Pro Val Asp Trp Asp | | | |
| 784 1525 | 1530 | 1535 | |
| 786 Ala Val Leu Pro Gly Ala Glu Ala Ser Val Thr Val Arg Gly Leu Pro | | | |
| 787 1540 | 1545 | 1550 | |
| 789 Ala Ala Asp Arg Gln Trp Phe Arg Phe Val Pro Asp Gln Gly Ala Pro | | | |
| 790 1555 | 1560 | 1565 | |
| 792 Leu Thr Leu Ala Asp Arg Ser Leu His Leu Glu Gly Ala Ala His Leu | | | |
| 793 1570 | 1575 | 1580 | |
| 795 Arg Asp Val Gly Gly Cys Arg Thr Ala Asp Gly Arg Trp Val Lys Met | | | |
| E--> 796 585 | 1590 | 1595 | 1600 |
| 798 Gly Val Leu Tyr Arg Thr Asn Asn Leu His Ala Leu Thr Asp Ala Asp | | | |
| 799 1605 | 1610 | 1615 | |
| 801 Leu Ala Lys Leu Gln Arg Leu Gly Ile Arg Thr Asp Phe Asp Leu Arg | | | |
| 802 1620 | 1625 | 1630 | |
| 804 Met Pro Gly Glu Arg Ala Lys Ala Pro Asn Arg Val Pro Thr Gly Ala | | | |
| 805 1635 | 1640 | 1645 | |
| 807 Arg Tyr Ile Val Ala Asp Ala Phe Asp Ala His Leu Arg Asp Gly Leu | | | |
| 808 1650 | 1655 | 1660 | |
| 810 Ser Leu Ser Glu Arg Asp Leu Glu Arg Leu Arg Glu Ala Arg Leu Ser | | | |
| E--> 811 665 | 1670 | 1675 | 1680 |
| 813 Gly Leu Asp Glu Ala Glu Gln His Ala Leu Val Leu Ala Leu Val Leu | | | |
| 814 1685 | 1690 | 1695 | |
| 816 Ala Glu Thr Ser Ala Val Leu Gly Gly Gln Glu Thr Pro Gly Glu Glu | | | |
| 817 1700 | 1705 | 1710 | |
| 819 Pro His Gly Glu Glu Gly His Arg Thr Phe Lys Glu Met Gly Ile Asn | | | |
| 820 1715 | 1720 | 1725 | |
| 822 Ser Leu Asn Ala Val Glu Leu Arg Asn Arg Leu Ile Ala Ala Thr Asp | | | |
| 823 1730 | 1735 | 1740 | |
| 825 Leu Arg Leu Pro Ala Thr Leu Val Tyr Asp Tyr Pro Thr Pro Lys Ala | | | |
| E--> 826 745 | 1750 | 1755 | 1760 |
| 828 Val Val Arg Leu Val Arg Glu Arg Leu Ala Arg Pro Ala Ser Pro Ala | | | |
| 829 1765 | 1770 | 1775 | |

*Same
Error*

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831 Arg Asp Val Ala Ser Val Val Ala Glu Leu Glu Ser Leu Leu Thr Ala
832 1780 1785 1790
834 Gly Ala Glu Val Ser Glu Glu Thr Ala Ala Arg Leu Lys Ala Val Thr
835 1795 1800 1805
837 Ala Val Ser Thr Gly Thr Gly Ser Gly Ser Gly Thr Gly Ala Gly
838 1810 1815 1820
840 Ser Gly Gly Ala Leu Asp Leu Val Ser Ala Ser Asp Glu Glu Leu Phe
E--> 841 825 1830 1835 1840 *Same*
843 Arg Leu Met Asp Ala Glu Ser *last*
E--> 844 1845 *amino*
2558 <210> SEQ ID NO: 4
2559 <211> LENGTH: 6798 *acid at 1847*
2560 <212> TYPE: PRT *(p.23)*
2561 <213> ORGANISM: Streptomyces natalensis
2563 <400> SEQUENCE: 4
ppr 8-23
2564 Met Ser Asn Glu Glu Lys Leu Arg Glu Tyr Leu Lys Arg Ala Ile Ala
2565 1 5 10 15
2567 Asp Leu His Glu Thr Arg Gln Gln Leu Asp Glu Thr Glu Ala Lys Gln
2568 20 25 30
2570 Arg Glu Pro Leu Ala Ile Val Ser Met Ala Cys Arg Phe Pro Gly Gly
2571 35 40 45
2573 Val Arg Ser Pro Glu Glu Leu Trp Glu Leu Leu Arg Asp Gly Val Asp
2574 50 55 60
2576 Ala Val Ser Ser Phe Pro Arg Asn Arg Gly Trp Asp Leu Asp Ala Leu
2577 65 70 75 80
2579 Tyr His Ser Asp Pro Ala His Gln Gly Thr Ser Tyr Ala Arg Glu Gly
2580 85 90 95
2582 Gly Phe Leu His Asp Ala Gly Glu Phe Asp Pro Gly Phe Gly Ile
2583 100 105 110
2585 Ser Pro Arg Glu Ala Leu Ala Met Asp Pro Gln Gln Arg Leu Leu Leu
2586 115 120 125
2588 Glu Thr Ala Trp Glu Ala Val Glu Arg Ala Gly Ile Asp Pro Glu Ser
2589 130 135 140
2591 Leu Ala Gly Ser Arg Thr Gly Val Phe Val Gly Thr Gly His Gly Gly
2592 145 150 155 160
2594 Tyr Asp Ala Glu Gly Arg Arg Arg Ala Asp Glu Val Gly Gly His Leu
2595 165 170 175
2597 Leu Thr Gly Asn His Ile Ser Ile Ala Ser Gly Arg Ile Ser Tyr Val
2598 180 185 190
2600 Leu Gly Leu Glu Gly Pro Ala Leu Thr Val Asp Thr Ala Cys Ser Ser
2601 195 200 205
2603 Ser Leu Val Ala Leu His Leu Ala Met His Ala Leu Arg Arg Asp Glu
2604 210 215 220
2606 Cys Ala Met Ala Leu Val Gly Gly Ala Thr Val Met Ser Thr Pro Gln
2607 225 230 235 240
2609 Met Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg
2610 245 250 255
2612 Cys Lys Pro Phe Ala Ala Ala Asp Gly Thr Gly Trp Ser Glu Gly
2613 260 265 270

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2615 Val Gly Leu Leu Leu Val Glu Arg Leu Ser Asp Ala Val Arg Asn Gly
 2616 275 280 285
 2618 Tyr Pro Val Leu Ala Val Leu Lys Gly Ser Ala Val Asn Gln Asp Gly
 2619 290 295 300
 2621 Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ser Gln Gln Arg Val
 2622 305 310 315 320
 2624 Ile Arg Gln Ala Leu Thr Gly Ala Gly Leu Ala Ala Ser Asp Ile Asp
 2625 325 330 335
 2627 Ala Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp Pro Val Glu
 2628 340 345 350
 2630 Ala His Ala Leu Leu Ala Thr Tyr Gly Gln Gln Arg Ala Ala Asp Arg
 2631 355 360 365
 2633 Pro Cys Gly Leu Gly Ser Met Lys Ser Asn Ile Gly His Thr Gln Ala
 2634 370 375 380
 2636 Ala Ala Gly Ile Ala Gly Val Met Lys Met Val Leu Ala Met Arg His
 2637 385 390 395 400
 2639 Gly His Leu Pro Arg Thr Leu His Leu Asp Glu Pro Thr Gly His Val
 2640 405 410 415
 2642 Asp Trp Ser Glu Gly Asn Ala Arg Leu Leu Ala Glu Pro Glu Pro Trp
 2643 420 425 430
 2645 Pro Ser Ala Gly Arg Pro Arg Arg Ala Ala Val Ser Ser Phe Gly Ile
 2646 435 440 445
 2648 Ser Gly Thr Asn Ala His Val Ile Leu Glu Gln Ala Pro Ala His Glu
 2649 450 455 460
 2651 Ala Glu Pro Ala Pro Glu Pro Ala Ala Arg Pro Gly Ala Leu Pro Trp
 2652 465 470 475 480
 2654 Ile Leu Ser Ala Arg Thr Glu Ala Gly Leu Arg Ala Gln Ala Asp Arg
 2655 485 490 495
 2657 Leu Gly Arg His Leu Arg Asp Arg Ala Asp Leu Glu Pro Ala Ala Val
 2658 500 505 510
 2660 Ala His Ala Leu Ala Asp Thr Arg Thr Leu Met Glu His Arg Ala Val
 2661 515 520 525
 2663 Val Val Ala Gly Asp Arg Glu Glu Phe Leu Arg Gly Leu Asp Ala Leu
 2664 530 535 540
 2666 Ala Ala Gly Arg Thr Ala Asn Gly Leu Val Ser Gly Val Ala Val Lys
 2667 545 550 555 560
 2669 Ala Ala Ser Ala Phe Leu Phe Ala Gly Gln Gly Ser Gln Arg Pro Gly
 2670 565 570 575
 2672 Met Gly Arg Glu Leu His Ala Ala His Pro Val Phe Ala Thr Ala Phe
 2673 580 585 590
 2675 Asp Ala Val Cys Ala Glu Leu Asp Pro His Leu Asp Arg Pro Leu Arg
 2676 595 600 605
 2678 Asp Ile Val Phe Ala Glu Glu Gly Ser Ala Glu Ala Ala Leu Leu Asp
 2679 610 615 620
 2681 Gln Thr Ala Tyr Thr Gln Ala Ala Leu Phe Ala Leu Glu Thr Ala Leu
 2682 625 630 635 640
 2684 Phe Arg Leu Val Glu Ser Trp Gly Val Ala Pro Arg Phe Val Ala Gly
 2685 645 650 655
 2687 His Ser Ile Gly Glu Leu Thr Ala Ala His Val Ser Gly Val Leu Thr

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| | | | | |
|------|---|------|------|------|
| 2688 | 660 | 665 | 670 | |
| 2690 | Leu His Asp Ala Ala Arg Leu Val Ala Ala Arg Gly Thr Leu Met Gln | | | |
| 2691 | 675 | 680 | 685 | |
| 2693 | Ala Leu Pro Ala Gly Gly Ala Met Val Ala Val Gln Ala Thr Glu Asp | | | |
| 2694 | 690 | 695 | 700 | |
| 2696 | Glu Ile Arg Glu Arg Leu Ala Gly His Glu Asp His Val Ala Leu Ala | | | |
| 2697 | 705 | 710 | 715 | 720 |
| 2699 | Ala Ala Asn Gly Pro Asp Ser Thr Val Ile Ser Gly Asp Glu Gln Ala | | | |
| 2700 | 725 | 730 | 735 | |
| 2702 | Val Thr Glu Ile Ala Ala His Trp Glu Ala Gln Gly Arg Arg Thr Lys | | | |
| 2703 | 740 | 745 | 750 | |
| 2705 | Arg Leu Arg Val Ser His Ala Phe His Ser Pro His Met Asp Asp Met | | | |
| 2706 | 755 | 760 | 765 | |
| 2708 | Leu Glu Asp Phe Arg Arg Val Ala Arg Gly Leu Thr Phe His Ala Pro | | | |
| 2709 | 770 | 775 | 780 | |
| 2711 | Arg Ile Pro Val Val Ser Thr Val Thr Gly Ala Leu Ala Thr Glu Asp | | | |
| 2712 | 785 | 790 | 795 | 800 |
| 2714 | Glu Leu Arg Ser Pro Asp Tyr Trp Val Arg Gln Val Arg Glu Thr Val | | | |
| 2715 | 805 | 810 | 815 | |
| 2717 | Arg Phe Cys Ala Ala Val Arg Thr Leu Glu Ala Glu Gly Val Thr Thr | | | |
| 2718 | 820 | 825 | 830 | |
| 2720 | Phe Val Glu Ile Gly Thr Gly Val Leu Thr Pro Met Val Gln Asp | | | |
| 2721 | 835 | 840 | 845 | |
| 2723 | Cys Leu Thr Thr Leu Glu Glu Pro Val Leu Val Pro Leu Leu Arg Thr | | | |
| 2724 | 850 | 855 | 860 | |
| 2726 | Gly Arg Pro Glu Thr Val Ala Leu Thr Glu Gly Val Ala Thr Ala Phe | | | |
| 2727 | 865 | 870 | 875 | 880 |
| 2729 | Val His Gly Val Pro Val Asp Arg Ser Ala Phe Pro Gly Ala Pro Gly | | | |
| 2730 | 885 | 890 | 895 | |
| 2732 | Thr Ser Arg Ala Asp Leu Pro Thr Tyr Ala Phe Gln Arg Gln Trp Tyr | | | |
| 2733 | 900 | 905 | 910 | |
| 2735 | Trp Leu Asp Pro Ala Asp His Asp Glu Gly Glu Ala Ala Ala Ala Glu | | | |
| 2736 | 915 | 920 | 925 | |
| 2738 | Ala Gly Glu Ala Gly Phe Trp Ala Ala Val Glu Arg Glu Asp Leu Gln | | | |
| 2739 | 930 | 935 | 940 | |
| 2741 | Glu Leu Ser Ala Val Leu Ala Ile Asp Gly Ser Glu Ala Asp Ser Leu | | | |
| 2742 | 945 | 950 | 955 | 960 |
| 2744 | Gly Ser Phe Leu Pro Thr Leu Ser Ser Trp Arg Arg Gln Arg Arg Thr | | | |
| 2745 | 965 | 970 | 975 | |
| 2747 | Gln Ala Ala Ala Asp Arg Phe Ser Tyr Arg Thr His Trp Ala Pro Arg | | | |
| 2748 | 980 | 985 | 990 | |
| 2750 | Thr Ala Ser Gly Gly Pro Thr Ala Thr Gly His Trp Leu Val Val Leu | | | |
| 2751 | 995 | 1000 | 1005 | |
| 2753 | Pro Glu Gly Gly Thr Asp Asp Pro Trp Thr Ala Arg Leu Leu Asp Ala | | | |
| 2754 | 1010 | 1015 | 1020 | |
| 2756 | Leu Asn Asp Gln Gly Leu His Thr Asp Val Arg Glu Leu Pro Ala Asp | | | |
| 2757 | 025 1025 | 1030 | 1035 | 1040 |
| 2759 | His Glu Pro Asp Ala Trp Gly Arg His Pro Val Asp Gly Val Leu Cys | | | |
| 2760 | 1045 | 1050 | 1055 | |

← same
end

E-->

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

2762 Leu Leu Ala Leu Asp Glu Arg Pro Thr Arg Ser Cys Pro Pro Tyr Arg
2763 1060 1065 1070
2765 Arg Gly Leu Ala Ala Thr Thr Asn Ala Ala Ala Arg Pro Glu Gly Ala
2766 1075 1080 1085
2768 Gly Ile Gln Ala Pro Leu Trp Cys Val Thr Arg Gly Ala Val Ala Val
2769 1090 1095 1100
2771 Asp Arg His Glu Ala Leu Lys Ser Pro Leu Gln Ala Gln Thr Trp Gly
E--> 2772 105 1110 1115 1120
2774 Leu Gly Arg Val Ala Ala Leu Glu Ser Pro Gln Ser Trp Gly Gly Leu
2775 1125 1130 1135
2777 Ile Asp Leu Pro Asp Asn Leu Asp Gly Arg Ala Val Ser Ala Leu Leu
2778 1140 1145 1150
2780 Ser Thr Leu Ala Gly Glu Asp Gln Val Ala Val Arg Pro Ala Gly
2781 1155 1160 1165
2783 Val Phe Ala Arg Arg Leu Glu Arg Ile Thr Pro Gly Gly Asp Thr Gly
2784 1170 1175 1180
2786 Asp Arg Trp Ser Thr His Gly Thr Val Leu Val Thr Gly Gly Thr Gly
E--> 2787 185 1190 1195 1200
2789 Ala Leu Gly Ala His Leu Ala His Trp Leu Ala Asp Ala Gly Ala Glu
2790 1205 1210 1215
2792 His Leu Val Leu Thr Gly Arg Arg Gly Pro Gln Ala Pro Gly Ala Pro
2793 1220 1225 1230
2795 Glu Leu Ala Ala Ala Leu Thr Asp Arg Gly Val Lys Val Thr Leu Ala
2796 1235 1240 1245
2798 Ala Cys Asp Ala Ala Asp Arg Asp Ala Leu Ala Ala Val Leu Ala Asp
2799 1250 1255 1260
2801 Ile Pro Pro His Leu Pro Leu Thr Gly Val Val His Ala Ala Gly Val
E--> 2802 265 1270 1275 1280
2804 Leu Asp Asp Gly Val Leu Asp Ala Leu Thr Pro Glu Arg Phe Glu Thr
2805 1285 1290 1295
2807 Val Leu Arg Pro Lys Ala Arg Ala Ala Gln Asn Leu His Glu Leu Thr
2808 1300 1305 1310
2810 Gln Asp Leu Asp Leu Asp His Phe Val Leu Phe Ser Ser Ile Val Gly
2811 1315 1320 1325
2813 Val Leu Gly Asn Ala Gly Gln Ala Asn Tyr Ala Ala Ala Asn Ala Tyr
2814 1330 1335 1340
2816 Leu Asp Ala Leu Ala Glu His Arg Leu Ala Gln Gly Leu Pro Ala Thr
E--> 2817 345 1350 1355 1360
2819 Ser Val Ser Trp Gly Pro Gly Gln Ala Ala Ala Trp His Asp Ser Asp
2820 1365 1370 1375
2822 Ala Ala Asp Arg Met Ser Arg Asp Gly Leu Leu Pro Met Ala Ala Ala
2823 1380 1385 1390
2825 Pro Arg Arg Arg Pro Ala Pro Ala Leu Ala Gln Gly Met Thr Gln Val
2826 1395 1400 1405
2828 Thr Val Ala Asp Ile Asp Trp Ser Ala Tyr Ala Pro Ala Leu Thr Ala
2829 1410 1415 1420
2831 Val Arg Pro Ser Pro Leu Ile Gly Asp Leu Pro Glu Ala Arg Arg Ala
E--> 2832 425 1430 1435 1440
2834 Leu Gly Pro Ala Glu Gly Pro Arg Arg Glu Arg Ser Pro Leu Arg Asp

Same
error

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

2835 1445 1450 1455
2837 Arg Ile Gly Ala Leu Pro Pro Ala Glu Gln Glu Lys Ala Phe Leu Thr
2838 1460 1465 1470
2840 Met Val Arg Glu Glu Ala Ala Arg Val Leu Gly His Pro Ser Pro Asp
2841 1475 1480 1485
2843 Thr Val Asp Ala Gln Arg Ala Phe Arg Glu Gln Gly Phe Asp Ser Leu
2844 1490 1495 1500
2846 Met Ala Val Asp Leu Arg Asn Arg Leu Ser Ala Ala Thr Gly Leu Arg
E--> 2847 505 1510 1515 1520
2849 Leu Pro Ala Thr Leu Leu Phe Asp His Pro Thr Pro Leu Ala Ala Ala
2850 1525 1530 1535
2852 Ala Cys Leu Arg Ser Glu Val Leu Gly Ala Ala Gly Pro Ala Thr Val
2853 1540 1545 1550
2855 Val Gln Ala Ser Thr Ala Ala Leu Asp Glu Pro Val Ala Ile Ile Gly
2856 1555 1560 1565
2858 Met Ala Cys Arg Phe Pro Gly Gly Val His Ser Pro Glu Ala Leu Trp
2859 1570 1575 1580
2861 Arg Leu Leu Ala Glu Gly Gly Asp Ala Ile Thr Pro Met Pro Ala Asp
E--> 2862 585 1590 1595 1600
2864 Arg Gly Trp Asp Leu Asp Arg Leu Tyr His Pro Asp Pro Asp His Gln
2865 1605 1610 1615
2867 Gly Thr Ser Tyr Ala Arg Gly Gly Phe Leu Asp Gly Ala Ala Asp
2868 1620 1625 1630
2870 Phe Asp Ala Asp Phe Phe Gly Ile Ser Pro Arg Glu Ala Leu Ala Met
2871 1635 1640 1645
2873 Asp Pro Gln Gln Arg Leu Leu Leu Glu Thr Trp Glu Val Leu Glu Gln
2874 1650 1655 1660
2876 Ala Gly Ile Asp Pro Glu Ser Leu Arg Gly Ser Ser Thr Gly Val Phe
E--> 2877 665 1670 1675 1680
2879 Ala Gly Thr Asn Thr Gln Asp Tyr Gly Thr Ala Leu Asp Ala Ala Gln
2880 1685 1690 1695
2882 Asp Glu Ala Gly Gly His Arg Leu Thr Gly Asn Ala Met Ser Val Val
2883 1700 1705 1710
2885 Ser Gly Arg Val Ser Tyr Thr Phe Gly Phe Glu Gly Pro Ala Leu Thr
2886 1715 1720 1725
2888 Val Asp Thr Ala Cys Ser Ser Leu Val Ala Leu His Met Ala Ala
2889 1730 1735 1740
2891 Gln Ala Leu Arg Gln Gly Glu Cys Ser Leu Ala Val Ala Gly Gly Val
E--> 2892 745 1750 1755 1760
2894 Thr Val Met Ala Thr Pro Ser Ser Phe Val Glu Phe Ala Arg Gln Arg
2895 1765 1770 1775
2897 Gly Leu Ala Pro Asp Gly Arg Cys Lys Pro Phe Ala Ala Ala Asp
2898 1780 1785 1790
2900 Gly Thr Gly Trp Ser Glu Gly Val Gly Leu Leu Leu Val Glu Arg Leu
2901 1795 1800 1805
2903 Ser Asp Ala Arg Arg Asn Gly His Gln Val Leu Ala Val Val Arg Gly
2904 1810 1815 1820
2906 Ser Ala Val Asn Gln Asp Gly Ala Ser Asn Gly Leu Ser Ala Pro Ser
E--> 2907 825 1830 1835 1840

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

2909 Gly Pro Ser Gln Gln Arg Val Ile Arg Gln Ala Leu Ala Asn Ala Arg
 2910 1845 1850 1855
 2912 Val Ala Ala Ser Glu Val Asp Ala Val Glu Ala His Gly Thr Gly Thr
 2913 1860 1865 1870
 2915 Thr Leu Gly Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly
 2916 1875 1880 1885
 2918 Gln Glu Arg Pro Leu Leu Leu Gly Ala Val Lys Ser Asn Leu Gly His
 2919 1890 1895 1900
 2921 Thr Gln Ala Ala Ala Gly Val Ala Gly Val Met Lys Met Val Leu Ala
 E--> 2922 905 1910 1915 1920
 2924 Met Arg His Gly Met Leu Pro Arg Thr Leu His Val Asp Glu Pro Thr
 2925 1925 1930 1935
 2927 Gly His Val Asp Trp Thr Ala Gly Ala Val Glu Leu Leu Thr Glu His
 2928 1940 1945 1950
 2930 Thr Asp Trp Pro Glu Thr Gly His Pro Arg Arg Ala Ala Val Ser Ala
 2931 1955 1960 1965
 2933 Phe Gly Ile Ser Gly Thr Asn Ala His Val Val Leu Glu Leu Pro Ala
 2934 1970 1975 1980
 2936 Ala Glu Gln Pro Leu Val Glu Gln Pro Ser Ala Ala Glu Pro Asp Ala
 E--> 2937 985 1990 1995 2000
 2939 Pro Ala Thr Ala Pro Asp Arg Thr Pro Thr Ala Ser Asp Gly Thr Ala
 2940 2005 2010 2015
 2942 Pro Leu Leu Leu Ser Ala Lys Ser Glu Ser Ala Leu Arg Ala Gln Ala
 2943 2020 2025 2030
 2945 Ala Arg Leu His Ser His Leu Glu Arg Asp Pro Ala Leu Arg Leu Thr
 2946 2035 2040 2045
 2948 Asp Ala Ala Tyr Thr Leu Met Thr His Arg Thr Ala Phe Ala His Arg
 2949 2050 2055 2060
 2951 Ala Ala Val Arg Ala Ala Asp His Glu Ala Ala Leu Arg Ala Leu Thr
 E--> 2952 065 2070 2075 2080
 2954 Ala Leu Ala Ala Gly Glu Ala Asp Pro Ala Val Asp Thr Gly Thr Ala
 2955 2085 2090 2095
 2957 His Thr Gly Arg Asp Ala Val Leu Phe Ser Gly Gln Gly Ser Gln Arg
 2958 2100 2105 2110
 2960 Ile Gly Met Gly Arg Glu Leu Ser Gly Arg Tyr Pro Val Phe Ala Glu
 2961 2115 2120 2125
 2963 Ala Phe Asp Thr Val Cys Ala Ala Leu Asp Glu His Leu Asp Arg Pro
 2964 2130 2135 2140
 2966 Leu Arg Asp Val Val Arg Gly Glu Asp Glu Glu Leu Leu Asn Arg Thr
 E--> 2967 145 2150 2155 2160
 2969 Val Tyr Ala Gln Ala Gly Leu Phe Ala Ile Glu Val Ala Leu Phe Arg
 2970 2165 2170 2175
 2972 Leu Val Glu Ser Trp Gly Val Arg Pro His Tyr Val Ala Gly His Ser
 2973 2180 2185 2190
 2975 Val Gly Glu Ile Ala Ala His Val Ala Gly Val Phe Ser Leu Ala
 2976 2195 2200 2205
 2978 Asp Ala Cys Ala Leu Val Ala Ala Arg Gly Arg Leu Met Gln Ala Leu
 2979 2210 2215 2220
 2981 Pro Ala Gly Gly Ala Met Ala Ala Ile Arg Ala Thr Glu Asp Glu Val

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

E--> 2980 225 2230 2235 2240
2984 Leu Pro His Leu Ala Asp Ser Val Ser Ile Ala Ala Val Asn Gly Pro
2985 2245 2250 2255
2987 Ser Ser Val Val Val Ser Gly Ala Glu His Ala Val Leu Ser Ile Ala
2988 2260 2265 2270
2990 Ala His Phe Glu Gly Ala Gly Arg Lys Thr Thr Arg Leu Arg Val Ser
2991 2275 2280 2285
2993 His Ala Phe His Ser Pro Leu Met Asp Pro Met Leu Ala Asp Phe Arg
2994 2290 2295 2300
2996 Ala Val Ala Glu Gly Leu Thr Tyr Gly Glu Pro Glu Leu Ala Val Val
E--> 2997 305 2310 2315 2320
2999 Ser Asn Val Thr Gly Gln Leu Ala Thr Pro Asp Gln Leu Arg Thr Pro
3000 2325 2330 2335
3002 Glu Tyr Trp Val Thr His Val Arg Ala Ala Val Arg Phe Ala Asp Gly
3003 2340 2345 2350
3005 Ile Arg Ala Leu Gly Ala Glu Gly Val Thr Arg Phe Leu Glu Leu Gly
3006 2355 2360 2365
3008 Pro Asp Gly Val Leu Ser Ala Leu Ala Arg Glu Ser Ala Pro Asp Asp
3009 2370 2375 2380
3011 Ala Val Cys Thr Pro Val Leu Arg Lys Asp Arg Ser Glu Ala Ala Thr
E--> 3012 385 2390 2395 2400
3014 Leu Leu Ala Ala Leu Thr His Leu His Val His Gly Thr Glu Ile Asp
3015 2405 2410 2415
3017 Trp Thr Ala Phe Leu Ala Gly Arg Asp Ala His Ala Val Asp Leu Pro
3018 2420 2425 2430
3020 Thr Tyr Ala Phe Gln His Gln Arg Phe Trp Pro Thr Pro Asp His Thr
3021 2435 2440 2445
3023 Arg Thr Gly Asp Leu Gly Ala Val Gly Leu Glu Ala Thr Gly His Pro
3024 2450 2455 2460
3026 Leu Leu Ser Ala Ala Val Glu Leu Pro Asp Gly Glu Gly Leu Leu Phe
E--> 3027 465 2470 2475 2480
3029 Thr Thr Arg Leu Ser Leu Gln Thr His Pro Trp Leu Ala Gly His Val
3030 2485 2490 2495
3032 Val Met Gly Ser Val Leu Leu Pro Gly Thr Ala Phe Ala Glu Leu Ala
3033 2500 2505 2510
3035 Leu Arg Ala Ala Asp Glu Val Gly Cys Asp Arg Val Asp Glu Leu Thr
3036 2515 2520 2525
3038 Leu Ala Ala Pro Leu Val Leu Pro Glu His Gly Val Gln Leu Gln
3039 2530 2535 2540
3041 Leu Arg Val Gly Pro Ala Asp Ala Ser Gly Arg Arg Thr Leu Thr Ala
E--> 3042 545 2550 2555 2560
3044 Arg Ser Arg Ala Glu Gly Asp Gly Asp Arg Pro Trp Val Gln His Ala
3045 2565 2570 2575
3047 Thr Gly Val Leu Ala Glu Gly Glu Ser Thr Pro Glu Pro Gly Tyr Asp
3048 2580 2585 2590
3050 Phe His Thr Glu Ser Trp Pro Pro Ala Asp Ala Ala Pro Val Glu Leu
3051 2595 2600 2605
3053 Ser Gly Leu Tyr Pro Asp Phe Ala Ala His Gly Phe Asp Tyr Gly Pro
3054 2610 2615 2620

Dane

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3056 His Phe Gln Gly Leu Arg Thr Ala Trp Arg Arg Gly Asp Glu Val Phe
E--> 3057 625 2630 2635 2640
3059 Ala Glu Val Ala Leu Pro Ala Glu Ala Glu Gly Glu Ala Ser Ala Tyr
3060 2645 2650 2655
3062 Gly Leu His Pro Ala Leu Leu Asp Ala Ala Leu His Val Val Ala Phe
3063 2660 2665 2670
3065 Asn Gly Val Asp Arg Gly Val Val Pro Phe Ser Trp Glu Ser Val Ala
3066 2675 2680 2685
3068 Leu His Ala Thr Gly Ala Ser Ala Val Arg Ile Arg Val Val Arg His
3069 2690 2695 2700
3071 Ser Gly Asp Thr Val Ser Val Asp Val Ala Asp Thr Thr Gly Glu Pro
E--> 3072 705 2710 2715 2720
3074 Val Ala Ser Ile Gly Thr Leu Val Leu Arg Ala Val Ser Ala Asp Gln
3075 2725 2730 2735
3077 Leu Ala Gly Gly Ala Asp Pro Ala Val Arg Asp Ala Leu Phe Arg Val
3078 2740 2745 2750
3080 Gln Trp Asn Pro Val Arg Leu Pro Pro Ala Gly Ala Ala Val Thr Val
3081 2755 2760 2765
3083 Ala Thr Leu Gly Ser Leu Ala Gly Ala Pro Phe Asp Gly Tyr Pro Asp
3084 2770 2775 2780
3086 Leu Ala Ser Leu Ala Arg Ser Gly Arg Val Ala Gly Ala Val Leu Val
E--> 3087 785 2790 2795 2800
3089 Pro Val Glu Ala Gly Ala Gly Glu Val Val Ala Asp Asp Val Val Gly
3090 2805 2810 2815
3092 Ala Thr His Ala Thr Ala Ala Arg Ala Leu Asp Leu Ala Arg Ser Trp
3093 2820 2825 2830
3095 Leu Ala Asp Asp Arg Phe Ala Ala Ser Arg Leu Val Phe Val Thr Arg
3096 2835 2840 2845
3098 Gly Ala Val Ser Gly Ala Asp Leu Ala Gly Ala Ala Val Trp Gly Leu
3099 2850 2855 2860
3101 Val Arg Ser Ala Leu Ser Glu His Pro Gly Arg Phe Gly Leu Val Asp
E--> 3102 865 2870 2875 2880
3104 Leu Asp Asp Asp Ala Glu Leu Ala Leu Val Pro Arg Val Leu Ala Ser
3105 2885 2890 2895
3107 Asp Glu Pro Gln Leu Leu Val Arg Gly Gly Glu Val Leu Ala Ala Arg
3108 2900 2905 2910
3110 Leu Ala Arg Ala Gln Ser Ser His Ala Val Thr Trp Asp Pro Ser Gly
3111 2915 2920 2925
3113 Thr Val Leu Val Thr Gly Gly Thr Gly Gly Leu Gly Arg Val Met Ala
3114 2930 2935 2940
3116 Arg His Leu Val Val Glu His Gly Val Arg Asn Leu Leu Leu Val Ser
E--> 3117 945 2950 2955 2960
3119 Arg Arg Gly Pro Ala Ala Glu Gly Ala Glu Glu Leu Val Thr Glu Leu
3120 2965 2970 2975
3122 Arg His Ser Gly Ala Glu Val Ala Val Glu Ala Cys Asp Val Thr Asp
3123 2980 2985 2990
3125 Ala Ala Ala Val Ala Asp Leu Val Ala Arg His Arg Ile Ser Ala Val
3126 2995 3000 3005
3128 Val His Thr Ala Gly Val Leu Asp Asp Gly Val Val Glu Ser Leu Thr

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3129 3010 3015 3020
 3131 Pro Glu Arg Leu Ser Ala Val Leu Arg Pro Lys Val Asp Ala Ala Trp
 E--> 3132 025 3030 3035 3040
 3134 Asn Leu His Glu Ala Thr Arg Asp Leu Asp Leu Asp Ala Phe Val Val
 3135 3045 3050 3055
 3137 Phe Ser Ser Val Ala Gly Thr Ile Gly Ser Pro Gly Gln Ala Asn Tyr
 3138 3060 3065 3070
 3140 Ala Ala Gly Asn Ala Phe Leu Asp Ala Leu Ala His His Arg Arg Ala
 3141 3075 3080 3085
 3143 Ala Gly Leu Pro Ala Ala Ser Leu Ala Trp Gly Pro Trp Ser Arg Asp
 3144 3090 3095 3100
 3146 Gly Gly Met Thr Gly Thr Leu Thr Asp Val Asp Ser Ser Ala Ser Pro
 E--> 3147 105 3110 3115 3120
 3149 Gly Arg His Ala Arg Thr His Pro Arg Thr Gly Arg Gly Leu Phe Asp
 3150 3125 3130 3135
 3152 Ala Ala Leu Ala Ala Gly Asp Ala His Leu Leu Pro Val Arg Phe Asp
 3153 3140 3145 3150
 3155 Trp Ala Ser Leu Arg Ala Gln Gly Glu Val Pro Pro Leu Leu Arg Gly
 3156 3155 3160 3165
 3158 Leu Ile Arg Thr Arg Ala Arg Arg Ser Ala Val Gly Gly Ser Ala Ala
 3159 3170 3175 3180
 3161 Ala Ala Gly Leu Val Gly Arg Leu Ser Gly Arg Gly Thr Val Glu Arg
 E--> 3162 185 3190 3195 3200
 3164 Arg Glu Val Leu Leu Asp Leu Val Arg Ala Gln Ile Ala Val Val Leu
 3165 3205 3210 3215
 3167 Gly His Ala Asn Pro Glu Thr Ile Glu Ser Thr Arg Val Phe Gln Asp
 3168 3220 3225 3230
 3170 Leu Gly Phe Asp Ser Leu Thr Ala Val Glu Leu Arg Asn Arg Leu Asn
 3171 3235 3240 3245
 3173 Asn Ala Thr Gly Leu Arg Leu Ser Ala Thr Ala Val Phe Asp Tyr Pro
 3174 3250 3255 3260
 3176 Thr Ala Asp Ala Leu Val Asp Phe Leu Leu Asp Glu Leu Phe Gly Ala
 E--> 3177 265 3270 3275 3280
 3179 Gln Glu Ala Glu Leu Pro Ala Pro Val Pro Ser Pro Ala Gly Ala
 3180 3285 3290 3295
 3182 Ala Asp Asp Pro Val Val Ile Val Gly Met Ser Cys Arg Tyr Pro Gly
 3183 3300 3305 3310
 3185 Gly Val Gly Ser Pro Glu Asp Leu Trp Arg Leu Val Ser Glu Gly Val
 3186 3315 3320 3325
 3188 Asp Ala Val Ser Asp Phe Pro Thr Asp Arg Gly Trp Asp Val Glu Ser
 3189 3330 3335 3340
 3191 Leu Tyr Ser Pro Asp Pro Glu Ala Leu Gly Thr Ser Tyr Thr Arg Ser
 E--> 3192 345 3350 3355 3360
 3194 Gly Gly Phe Leu His Glu Ala Ala Glu Phe Asp Pro Asp Phe Phe Gly
 3195 3365 3370 3375
 3197 Met Ser Pro Arg Glu Ala Leu Ala Thr Asp Ala Gln Gln Arg Leu Leu
 3198 3380 3385 3390
 3200 Leu Glu Thr Thr Trp Glu Ala Ile Glu Arg Thr Gly Ile Asp Pro Ala
 3201 3395 3400 3405

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3203 Ser Leu Arg Gly Ser Arg Thr Gly Val Phe Ala Gly Val Met Tyr Thr
3204 3410 3415 3420
3206 Asp Tyr Gly Asp Leu Leu Val Gly Asp Gln Phe Glu Gly Tyr Arg Ser
E--> 3207 425 3430 3435 3440
3209 Asn Gly Ser Ala Ala Ser Ile Ala Ser Gly Arg Val Ser Tyr Thr Phe
3210 3445 3450 3455
3212 Gly Phe Glu Gly Pro Ala Val Thr Val Asp Thr Ala Cys Ser Ser Ser
3213 3460 3465 3470
3215 Leu Val Ala Leu His Trp Ala Ala Gln Ser Leu Arg Ser Gly Glu Cys
3216 3475 3480 3485
3218 Ser Leu Ala Val Ala Gly Gly Val Thr Val Met Ser Thr Pro Thr Thr
3219 3490 3495 3500
3221 Phe Val Glu Phe Ser Arg Gln Arg Gly Leu Ser Ala Asp Gly Arg Cys
E--> 3222 505 3510 3515 3520
3224 Lys Ala Phe Ala Asp Ala Ala Asp Gly Val Gly Trp Gly Glu Gly Val
3225 3525 3530 3535
3227 Gly Met Leu Val Leu Glu Arg Leu Ser Asp Ala Arg Arg Asn Gly His
3228 3540 3545 3550
3230 Arg Val Leu Ala Val Val Arg Gly Ser Ala Val Asn Gln Asp Gly Ala
3231 3555 3560 3565
3233 Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ala Gln Gln Arg Val Ile
3234 3570 3575 3580
3236 Arg Gln Ala Leu Ala Ser Ala Gly Leu Ser Ala Ala Asp Val Asp Ala
E--> 3237 585 3590 3595 3600
3239 Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp Pro Ile Glu Ala
3240 3605 3610 3615
3242 Gln Ala Leu Leu Ala Thr Tyr Gly Gln Glu Arg Pro Glu Asp Arg Pro
3243 3620 3625 3630
3245 Leu Leu Leu Gly Ser Val Lys Ser Asn Ile Gly His Ala Gln Ala Ala
3246 3635 3640 3645
3248 Ser Gly Val Ala Gly Val Ile Lys Met Val Leu Ala Met Arg His Gly
3249 3650 3655 3660
3251 Val Leu Pro Arg Thr Leu His Val Asp Glu Pro Ser Ser His Val Asp
E--> 3252 665 3670 3675 3680
3254 Trp Ser Ala Gly Ala Val Glu Leu Leu Thr Ser Glu Ala Glu Trp Pro
3255 3685 3690 3695
3257 Gln Gly Glu Gly Pro Arg Arg Ala Gly Val Ser Ser Phe Gly Val Ser
3258 3700 3705 3710
3260 Gly Thr Asn Ala His Val Ile Leu Glu Gln Pro Gly Pro Asp Ala Ala
3261 3715 3720 3725
3263 Asp Ala Ala Pro Asp Ala Thr Val Thr Asp Pro Gly Ala Leu Ala Trp
3264 3730 3735 3740
3266 Val Leu Ser Ala Arg Asn Glu Ala Ala Leu Arg Cys Gln Ala Ala Arg
E--> 3267 745 3750 3755 3760
3269 Leu Leu Ser Leu Val Ala Gly Ser Asp Ala Leu Cys Ala Arg Asp Ile
3270 3765 3770 3775
3272 Gly His Ser Leu Val Thr Gly Arg Ser Ser Phe Ala His Arg Ala Val
3273 3780 3785 3790
3275 Val Trp Gly Gln Asp Arg Asp Ala Leu Val Arg Ala Leu Ser Ala Leu

Done

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3276 3795 3800 3805
3278 Ala Val Gly Glu Ala Asp Ala Gly Leu Ala Glu Gly Ala Ser Gly Ala
3279 3810 3815 3820
3281 Gly Arg Thr Ala Phe Leu Phe Ser Gly Gln Gly Ser Gln Arg Leu Gly
E--> 3282 825 3830 3835 3840
3284 Met Gly Trp Glu Leu Tyr Ala Arg Tyr Pro Val Phe Ala Asp Ala Phe
3285 3845 3850 3855
3287 Asp Ala Val Cys Ala Ala Leu Asp Glu His Leu Glu Arg Pro Leu Arg
3288 3860 3865 3870
3290 Asp Val Val Trp Gly Glu Asp Ala Glu Leu Leu Asn Gln Thr Ala Tyr
3291 3875 3880 3885
3293 Ala Gln Ala Gly Leu Phe Ala Ile Glu Val Ala Leu Tyr Arg Leu Ala
3294 3890 3895 3900
3296 Glu Ser Trp Gly Met Arg Pro Asp Phe Val Ala Gly His Ser Ile Gly
E--> 3297 905 3910 3915 3920
3299 Glu Val Ala Ala His Val Ser Gly Val Phe Ser Leu Pro Asp Ala
3300 3925 3930 3935
3302 Cys Ala Leu Val Ala Ala Arg Gly Arg Leu Met Gln Gln Leu Pro Ser
3303 3940 3945 3950
3305 Gly Gly Ala Met Met Ala Ile Arg Ala Thr Glu Asp Glu Val Leu Pro
3306 3955 3960 3965
3308 His Leu Ala Glu Gly Val Ser Leu Ala Ala Val Asn Gly Pro Ser Ser
3309 3970 3975 3980
3311 Val Val Ile Ser Gly Ala Glu Asp Ala Val Leu Ala Ile Ala Ala His
E--> 3312 985 3990 3995 4000
3314 Phe Ala Gly Glu Gly Arg Lys Thr Thr Arg Leu Arg Val Ser His Ala
3315 4005 4010 4015
3317 Phe His Ser Pro Leu Met Glu Pro Met Leu Glu Glu Phe Arg Ala Val
3318 4020 4025 4030
3320 Val Thr Arg Leu Ser Phe Gly Thr Pro Thr Ile Pro Val Val Ser Asn
3321 4035 4040 4045
3323 Leu Thr Gly Arg Leu Ala Glu Pro Glu Gln Leu Ala His Ala Asp Tyr
3324 4050 4055 4060
3326 Trp Val Arg His Val Arg Glu Ala Val Arg Phe Ala Asp Gly Ile Gln
E--> 3327 065 4070 4075 4080
3329 Ala Leu Arg Ala Glu Gly Val Thr Arg Phe Leu Glu Leu Gly Pro Asp
3330 4085 4090 4095
3332 Gly Val Leu Ser Ala Met Ala Arg Glu Ser Ala Ser Asp Asp Ala Val
3333 4100 4105 4110
3335 Leu Ala Pro Val Leu Arg Arg Asp Arg Pro Glu Glu Thr Ala Leu Leu
3336 4115 4120 4125
3338 Gly Ala Leu Ala Gln Leu Tyr Val Arg Gly Ala His Val Asp Trp Thr
3339 4130 4135 4140
3341 Val Pro Phe Ala Gly Ser Gly Ala Arg Trp Ala Asp Leu Pro Thr Tyr
E--> 3342 145 4150 4155 4160
3344 Ala Phe Gln His Glu Arg Phe Trp Pro Ser Gly Gly Val Ala Arg Pro
3345 4165 4170 4175
3347 Gly Asp Val Arg Ser Ala Gly Leu Gly Ser Ala Gly His Pro Leu Leu
3348 4180 4185 4190

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3350 Gly Ala Ala Val Glu Leu Ala Gly Ser Gly Gly Leu Leu Phe Thr Gly
3351 4195 4200 4205
3353 Arg Leu Ser Val Ser Ser His Pro Trp Leu Ala Asp His Val Val Leu
3354 4210 4215 4220
3356 Gly Ser Val Leu Val Pro Gly Thr Ala Leu Val Glu Leu Val Leu Arg
E--> 3357 225 4230 4235 4240
3359 Ala Ala Asp Glu Ala Gly Cys Asp Leu Leu Glu Glu Leu Thr Leu Ala
3360 4245 4250 4255
3362 Ala Pro Leu Val Leu Pro Ala Ser Gly Ala Ala Val Gln Val Gln Val
3363 4260 4265 4270
3365 Ala Val Gly Glu Pro Asp Glu Ala Gly Arg Arg Pro Val Ser Val His
3366 4275 4280 4285
3368 Ala Arg Glu Gly Glu Gly Pro Trp Thr Leu His Ala Ser Gly Ala Val
3369 4290 4295 4300
3371 Thr Ser Gly Ala Glu Val Pro Pro Phe Asp Ala Thr Val Trp Pro Pro
E--> 3372 305 4310 4315 4320
3374 Lys Gly Ala Glu Pro Val Asp Val Ala Asp Cys Tyr Asp Val Leu Ala
3375 4325 4330 4335
3377 Asp Ala Gly Leu Thr Tyr Gly Pro Ala Phe His Gly Leu Gln Ala Ala
3378 4340 4345 4350
3380 Trp Lys Leu Gly Gly Asp Val Tyr Ala Glu Ala Lys Leu Pro Glu Ser
3381 4355 4360 4365
3383 Thr Asp Gly Asp Ala Tyr Gly Leu His Pro Ala Leu Phe Asp Ala Ala
3384 4370 4375 4380
3386 Leu His Ala Ser Ala Leu Gly Gly Ala Glu Ala Gly Gly Val Pro Phe
E--> 3387 385 4390 4395 4400
3389 Ser Trp Ala Gly Val Ser Leu His Ala Thr Gly Ala Ser His Leu Arg
3390 4405 4410 4415
3392 Val Arg Ile Arg Glu Ala Gly Gly Ala Leu Ser Val Ala Ile Ala Asp
3393 4420 4425 4430
3395 Thr Ser Gly Ala Pro Val Ala Ser Val Glu Ser Leu Val Ile Arg Pro
3396 4435 4440 4445
3398 Leu Ser Ala Gly Gln Val Gln Ala Ala Asp Arg Asp Ala Leu Phe Lys
3399 4450 4455 4460
3401 Ala Asp Trp Val Pro Val Pro Leu Thr Asp Glu Arg Val Glu Pro Gly
E--> 3402 465 4470 4475 4480
3404 Thr Gly Pro Glu Gly Glu Pro Leu Arg Thr Tyr Ala Asp Leu Asp Ser
3405 4485 4490 4495
3407 Leu Glu Gly Ala Ala Val Pro Gly Thr Val Leu Val Ala Pro Pro Ser
3408 4500 4505 4510
3410 Gly Ala Ala Gly Thr Val Glu Ser Val His Ala Ala Thr Val Trp Ala
3411 4515 4520 4525
3413 Leu Glu Met Val Gln Ala Trp Leu Ala Asp Asp Arg Phe Ala Thr Ser
3414 4530 4535 4540
3416 Arg Leu Val Phe Val Thr Arg Gly Ala Ala Phe Gly Ala Asp Leu Ala
E--> 3417 545 4550 4555 4560
3419 Ala Ala Ala Val Arg Gly Leu Val Arg Ser Ala Gln Ser Glu Asn Pro
3420 4565 4570 4575
3422 Gly Arg Phe Gly Leu Val Asp Met Asp Gly Asp Ala Asp Thr Val

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3423 4580 4585 4590
 3425 Pro Ala Gln Ala Leu Ala Thr Asp Glu Pro Glu Leu Leu Val Arg Gly
 3426 4595 4600 4605
 3428 Gly Glu Val Leu Ala Ala Arg Leu Val Arg Ala Gln Ser Ser His Thr
 3429 4610 4615 4620
 3431 Val Thr Trp Asp Pro Ser Gly Thr Val Leu Ile Thr Gly Gly Thr Gly
 E--> 3432 625 4630 4635 4640
 3434 Gly Leu Gly Arg Ser Val Ala Arg His Leu Val Ser Glu His Gly Val
 3435 4645 4650 4655
 3437 Arg Ser Leu Leu Leu Val Ser Arg Arg Gly Pro Ala Ala Glu Gly Ala
 3438 4660 4665 4670
 3440 Gly Glu Leu Val Ala Glu Leu Arg Gly Ser Gly Ala Glu Val Val Ile
 3441 4675 4680 4685
 3443 Glu Ala Cys Asp Val Thr Asp Ala Val Ala Val Ala Asp Leu Val Ala
 3444 4690 4695 4700
 3446 Arg His Arg Ile Ser Ala Val Val His Thr Ala Gly Val Leu Asp Asp
 E--> 3447 705 4710 4715 4720
 3449 Gly Val Val Glu Ser Leu Thr Pro Glu Arg Leu Ala Val Val Leu Arg
 3450 4725 4730 4735
 3452 Pro Lys Val Asp Ala Ala Trp Asn Leu His Glu Ala Thr Arg Gly Leu
 3453 4740 4745 4750
 3455 Asp Leu Asp Ala Phe Val Val Phe Ser Ser Val Ala Gly Thr Phe Gly
 3456 4755 4760 4765
 3458 Ser Ala Gly Gln Ala Asn Tyr Ala Ala Gly Asn Ala Phe Leu Asp Ala
 3459 4770 4775 4780
 3461 Leu Ala Tyr His Arg Arg Ala Val Gly Leu Pro Ala Val Ser Leu Ala
 E--> 3462 785 4790 4795 4800
 3464 Trp Gly Pro Trp Ser Gln Asp Gly Gly Met Thr Gly Thr Leu Ser Asp
 3465 4805 4810 4815
 3467 Ala Asp Val Gln Arg Ile Ala Arg Gln Gly Met Pro Pro Leu Thr Val
 3468 4820 4825 4830
 3470 Glu Glu Gly Leu Ala Leu Phe Asp Ala Ala Leu Gly Ser Ala Glu Pro
 3471 4835 4840 4845
 3473 Met Ala Leu Pro Val Arg Leu Asp Leu Ala Ala Leu Arg Ala Gln Gly
 3474 4850 4855 4860
 3476 Glu Pro Gln Pro Leu Leu Arg Gly Leu Ile Arg Thr Arg Thr Arg Arg
 E--> 3477 865 4870 4875 4880
 3479 Ser Gly Ala Ala Ala Ala Ser Gly Ile Ala Gln Arg Leu Ala Gly Leu
 3480 4885 4890 4895
 3482 Ser Thr Ala Glu Arg Arg Glu Ala Leu Leu Asp Val Val Arg Ala Gln
 3483 4900 4905 4910
 3485 Ile Ala Thr Val Leu Gly His Ala Gly Pro Glu Thr Ile Ala Pro Asp
 3486 4915 4920 4925
 3488 Arg Ala Phe Gln Asp Leu Gly Leu Asp Ser Leu Thr Ala Ile Glu Leu
 3489 4930 4935 4940
 3491 Arg Asn Leu Leu Gly Lys Ala Thr Gly Leu Arg Leu Pro Ala Thr Thr
 E--> 3492 945 4950 4955 4960
 3494 Val Phe Asp Tyr Pro Thr Val Asp Ala Leu Ala Ala His Leu Leu Asp
 3495 4965 4970 4975

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3497 Glu Leu Phe Gly Ala Glu Thr Gly Thr Ala Thr Glu Thr Pro Leu Pro
3498 4980 4985 4990
3500 Val Pro Gly Leu Pro Ser Leu Ala Asp Asp Pro Val Val Ile Val Gly
3501 4995 5000 5005
3503 Met Ser Cys Arg Phe Pro Gly Gly Val Ala Ser Pro Glu Asp Leu Trp
3504 5010 5015 5020
3506 Arg Leu Val Ala Asp Gly Val Asp Ala Val Ser Ala Phe Pro Thr Asp
E--> 3507 025 5030 5035 5040
3509 Arg Gly Trp Glu Ile Asp Asp Thr Tyr Asp Pro Glu Arg Glu Gly Ala
3510 5045 5050 5055
3512 Ile Ala Thr Arg Ser Gly Gly Phe Leu His Asp Ala Ala Glu Phe Asp
3513 5060 5065 5070
3515 Pro Glu Phe Phe Gly Met Ser Pro Arg Glu Ala Leu Thr Thr Asp Ala
3516 5075 5080 5085
3518 Gln Gln Arg Leu Leu Leu Glu Thr Thr Trp Glu Ala Leu Glu Arg Ala
3519 5090 5095 5100
3521 Gly Met Asp Pro Ala Thr Leu Arg Gly Ser Arg Thr Gly Val Phe Ala
E--> 3522 105 5110 5115 5120
3524 Gly Val Met Tyr His Asp Tyr Ser Thr Leu Leu Ser Gly Arg Glu Phe
3525 5125 5130 5135
3527 Glu Gly Tyr Gln Gly Ser Gly Ser Ala Gly Ser Val Ala Ser Gly Arg
3528 5140 5145 5150
3530 Val Ser Tyr Thr Phe Gly Phe Glu Gly Pro Ala Val Thr Val Asp Thr
3531 5155 5160 5165
3533 Ala Cys Ser Ser Ser Leu Val Ala Leu His Leu Ala Ala Gln Ser Leu
3534 5170 5175 5180
3536 Arg Ser Gly Glu Cys Ser Leu Ala Leu Ala Gly Gly Val Thr Val Met
E--> 3537 185 5190 5195 5200
3539 Ser Thr Pro Leu Thr Phe Val Glu Phe Ser Arg Gln Gly Gly Leu Ser
3540 5205 5210 5215
3542 Ala Asp Gly Arg Cys Lys Ala Phe Ala Asp Ala Ala Asp Gly Val Gly
3543 5220 5225 5230
3545 Trp Ala Glu Gly Ala Gly Ile Leu Val Leu Glu Arg Leu Ser Asp Ala
3546 5235 5240 5245
3548 Arg Arg Asn Gly His Arg Ile Leu Ala Thr Val Arg Gly Ser Ala Val
3549 5250 5255 5260
3551 Asn Gln Asp Gly Ala Ser Asn Gly Leu Thr Ala Pro Asn Gly Pro Ala
E--> 3552 265 5270 5275 5280
3554 Gln Gln Arg Val Ile Arg Gln Ala Leu Ala Ser Ala Gly Leu Ser Ala
3555 5285 5290 5295
3557 Ala Asp Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly
3558 5300 5305 5310
3560 Asp Pro Ile Glu Ala Gln Ala Leu Leu Ala Thr Tyr Gly Gln Glu Arg
3561 5315 5320 5325
3563 Pro Glu Asp Arg Pro Leu Leu Leu Gly Ser Val Lys Ser Asn Ile Gly
3564 5330 5335 5340
3566 His Ala Gln Ala Ala Ser Gly Val Ala Gly Val Ile Lys Met Val Leu
E--> 3567 345 5350 5355 5360
3569 Ala Met Arg His Gly Val Leu Pro Arg Thr Leu His Val Asp Glu Pro

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

| | | | |
|--|------|------|------|
| 3570 | 5365 | 5370 | 5375 |
| 3572 Ser Ser His Val Asp Trp Ser Ala Gly Ala Val Glu Leu Leu Thr Ser | | | |
| 3573 | 5380 | 5385 | 5390 |
| 3575 Glu Ala Glu Trp Pro Gln Gly Glu Gly Pro Arg Arg Ala Gly Val Ser | | | |
| 3576 | 5395 | 5400 | 5405 |
| 3578 Ser Phe Gly Ile Ser Gly Thr Asn Ala His Val Ile Leu Glu Gln Pro | | | |
| 3579 | 5410 | 5415 | 5420 |
| 3581 Glu Pro Val Ala Ala Glu Thr Glu Ser Ile Thr Pro Asp Thr Ala Pro | | | |
| E--> 3582 425 | 5430 | 5435 | 5440 |
| 3584 Asp Ala Ala Glu Asp Glu Ala Ala Asp Ser Gly Thr Pro Val Pro Ala | | | |
| 3585 | 5445 | 5450 | 5455 |
| 3587 Leu Leu Ser Gly Arg Ser Ala Ser Ala Leu Arg Ala Gln Ala Ala Arg | | | |
| 3588 | 5460 | 5465 | 5470 |
| 3590 Leu Leu Ser Arg Leu Asp Gly Asp Pro Gly Pro Arg Ile Thr Asp Val | | | |
| 3591 | 5475 | 5480 | 5485 |
| 3593 Ala Tyr Ser Leu Ala Thr Gly Arg Ser Ala Phe Pro His Arg Ala Val | | | |
| 3594 | 5490 | 5495 | 5500 |
| 3596 Ile Leu Ala Ala Asn Arg Ala Asp Leu Leu His Ser Leu Ser Ala Leu | | | |
| E--> 3597 505 | 5510 | 5515 | 5520 |
| 3599 Ala Glu Gly His Thr Glu Ala Pro Ala Val Val Ala Gln Asp Arg Ala | | | |
| 3600 | 5525 | 5530 | 5535 |
| 3602 Arg Ser Gly Lys Leu Ala Phe Leu Phe Ser Gly Gln Gly Ser Gln Arg | | | |
| 3603 | 5540 | 5545 | 5550 |
| 3605 Leu Gly Met Gly Arg Glu Leu Tyr Gly Arg Tyr Pro Ala Phe Ala Glu | | | |
| 3606 | 5555 | 5560 | 5565 |
| 3608 Ala Leu Asp Ala Val Cys Ala Ala Leu Asp Ala His Leu Asp Arg Pro | | | |
| 3609 | 5570 | 5575 | 5580 |
| 3611 Leu Arg Asp Val Ile Trp Gly Glu Asp Ala Glu Leu Leu Asn Arg Thr | | | |
| E--> 3612 585 | 5590 | 5595 | 5600 |
| 3614 Gly Tyr Ala Gln Thr Gly Leu Phe Ala Ile Glu Val Ala Leu Phe Arg | | | |
| 3615 | 5605 | 5610 | 5615 |
| 3617 Leu Leu Glu Ser Trp Gly Val Arg Pro Asp His Leu Leu Gly His Ser | | | |
| 3618 | 5620 | 5625 | 5630 |
| 3620 Ile Gly Glu Ile Ala Ala His Val Ala Gly Val Leu Ser Leu Pro | | | |
| 3621 | 5635 | 5640 | 5645 |
| 3623 Asp Ala Cys Ala Leu Val Ala Ala Arg Gly Arg Leu Met Gln Gln Leu | | | |
| 3624 | 5650 | 5655 | 5660 |
| 3626 Pro Ser Gly Gly Ala Met Met Ala Ile Arg Ala Thr Glu Asp Glu Val | | | |
| E--> 3627 665 | 5670 | 5675 | 5680 |
| 3629 Leu Pro His Leu Ala Glu Gly Val Ser Leu Ala Ala Val Asn Gly Pro | | | |
| 3630 | 5685 | 5690 | 5695 |
| 3632 Ser Ser Val Val Val Ser Gly Ala Glu Asp Glu Val Leu Ala Leu Ala | | | |
| 3633 | 5700 | 5705 | 5710 |
| 3635 Ala His Phe Glu Glu Gly Arg Lys Thr Thr Arg Leu Arg Val Ser | | | |
| 3636 | 5715 | 5720 | 5725 |
| 3638 His Ala Phe His Ser Pro Leu Met Glu Pro Met Leu Ala Asp Phe Arg | | | |
| 3639 | 5730 | 5735 | 5740 |
| 3641 Ala Val Ala Asp Gly Met Thr Tyr Ala Ala Pro Arg Ile Pro Val Val | | | |
| E--> 3642 745 | 5750 | 5755 | 5760 |

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3644 Ser Asn Val Thr Gly Arg Pro Ala Thr Ala Glu Glu Leu Cys Cys Ala
3645 5765 5770 5775
3647 Glu Tyr Trp Val Gly His Val Arg Glu Ala Val Arg Phe Ala Asp Gly
3648 5780 5785 5790
3650 Val Gly Ala Leu Arg Glu Gln Gly Val Thr Thr Phe Leu Glu Leu Gly
3651 5795 5800 5805
3653 Pro Asp Gly Ser Leu Ser Ala Leu Ala Ala Glu Ser Ala Ala Asp Asp
3654 5810 5815 5820
3655 Ser Val Leu Ala Pro Val Leu Arg Lys Asn Arg Pro Glu Ala Pro Ala
E--> 3651 825 5830 5835 5840
3659 Leu Leu Thr Ala Leu Ala Arg Leu His Ala Gln Gly Thr Pro Val Asp
3660 5845 5850 5855
3662 Trp Ser Ala Ala Phe Ala Gly Thr Gly Ala Arg Trp Val Asp Leu Pro
3663 5860 5865 5870
3665 Thr Tyr Ala Phe Gln His Glu Arg Phe Trp Pro Ser Gly Gly Ala Ala
3666 5875 5880 5885
3668 Arg Ala Gly Asp Val Arg Ser Ala Gly Leu Gly Ser Ala Gly His Pro
3669 5890 5895 5900
3671 Leu Leu Gly Ala Ala Val Glu Leu Ala Gly Ser Gly Gly Arg Leu Leu
E--> 3672 905 5910 5915 5920 *Same*
3674 Thr Gly Arg Leu Ser Leu Ser Ser His Pro Trp Leu Ala Asp His Val
3675 5925 5930 5935
3677 Val Leu Gly Ser Val Leu Val Pro Gly Thr Ala Leu Met Glu Leu Val
3678 5940 5945 5950
3680 Leu Arg Ala Ala Asp Glu Val Asp Cys Ala Ala Val Asp Glu Leu Thr
3681 5955 5960 5965
3683 Leu Ala Ala Pro Leu Val Leu Pro Ala Ser Gly Ala Ala Ile Gln Val
3684 5970 5975 5980
3686 Glu Val Trp Val Gly Glu Pro Asp Glu Ala Gly Arg Arg Pro Val Ser
E--> 3687 985 5990 5995 6000
3689 Val His Ala Arg Glu Gly Glu Gly Pro Trp Thr Leu His Ala Asp Gly
3690 6005 6010 6015
3692 Ala Leu Ala Pro Ala Ala Glu Thr Val Pro Phe Asp Thr Ala Ile Trp
3693 6020 6025 6030
3695 Pro Pro Gln Gly Ala Glu His Leu Asp Ala Ala Gly Cys Tyr Glu Arg
3696 6035 6040 6045
3698 Phe Ala Asp Ala Gly Phe Ala Tyr Gly Pro Val Phe Gln Gly Leu Arg
3699 6050 6055 6060
3701 Ala Ala Trp Lys Leu Gly Glu Asp Ile Tyr Ala Glu Val Ala Leu Pro
E--> 3702 065 6070 6075 6080
3704 Glu Gly Thr Asp Gly Asn Ala Tyr Gly Leu His Pro Ala Leu Phe Asp
3705 6085 6090 6095
3707 Ala Ala Leu His Ala Ala Leu Leu Gly Gly Glu Gly Thr Asp Glu Ala
3708 6100 6105 6110
3710 Ala Val Pro Phe Ser Trp Asn Gly Val Thr Leu His Ala Thr Gly Ala
3711 6115 6120 6125
3713 Ser Arg Val Arg Val Arg Ile Arg Pro Thr Glu Gly Gly Thr Ser Ile
3714 6130 6135 6140
3716 Ala Leu Val Asp Thr Ala Gly Ala Pro Val Ala Ser Val Arg Ser Leu

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

E--> 3717 145 6150 6155 6160
3719 Thr Ala Arg Pro Ile Thr Ala Gly Gln Leu Gln Thr Gly Asp Arg Asp
3720 6165 6170 6175
3722 Ser Leu Phe Gln Val Asp Trp Thr Thr Leu His Leu Thr Asp Glu Arg
3723 6180 6185 6190
3725 Ala Asn Ser Leu Ala Leu Leu Gly Lys Asp Thr Glu Gly Ile Leu Asp
3726 6195 6200 6205
3728 Thr Leu Ser Leu Gln Pro His Ala Asp Leu Asp Asp Leu Ala Ala Thr
3729 6210 6215 6220
3731 Gly Val His Asp Thr Val Leu Ala Pro Leu Pro Thr Arg Thr Ala Gly
E--> 3732 225 6230 6235 6240
3734 Thr Val Glu Ser Val His Ala Ala Thr Thr Gly Ala Leu Ala Leu Ile
3735 6245 6250 6255
3737 Arg Ser Trp Leu Ala Asp Asp Arg Phe Ala Ala Ser Arg Leu Val Phe
3738 6260 6265 6270
3740 Val Thr Arg Gly Ala Val Ser Gly Thr Asp Leu Ala Gly Ala Ser Val
3741 6275 6280 6285
3743 Trp Gly Leu Val Arg Ser Ala Leu Leu Glu His Pro Gly Arg Phe Gly
3744 6290 6295 6300
3746 Leu Val Asp Val Asp Val Asp Gln Asp Ala Glu Val Pro Leu Val Pro
E--> 3747 305 6310 6315 6320
3749 Arg Ala Leu Ala Ser Asp Glu Pro Gln Val Leu Val Arg Gly Gly Glu
3750 6325 6330 6335
3752 Val Leu Ala Ala Arg Leu Val Arg Ala Gln Ser Ser Asp Thr Val Thr
3753 6340 6345 6350
3755 Trp Asp Pro Ser Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Gly Leu
3756 6355 6360 6365
3758 Gly Arg Ser Val Ala Arg His Leu Val Ser Glu His Gly Val Arg Ser
3759 6370 6375 6380
3761 Leu Leu Leu Val Ser Arg Arg Gly Pro Ala Ala Glu Gly Val Asp Ala
E--> 3762 385 6390 6395 6400
3764 Leu Val Ala Glu Leu Ala Glu Cys Gly Ala Gln Val Thr Val Glu Ala
3765 6405 6410 6415
3767 Cys Asp Val Thr Asp Ala Val Ala Val Ala Asp Leu Val Ala Arg His
3768 6420 6425 6430
3770 Arg Ile Ser Ala Val Val His Thr Ala Gly Val Leu Asp Asp Gly Val
3771 6435 6440 6445
3773 Val Glu Ser Leu Thr Pro Glu Arg Leu Ser Ala Val Leu Arg Pro Lys
3774 6450 6455 6460
3776 Val Asp Ala Ala Trp Asn Leu His Glu Ala Thr Arg Gly Leu Asp. Leu
E--> 3777 465 6470 6475 6480
3779 Asp Ala Phe Val Val Phe Ser Ser Val Ala Gly Thr Phe Gly Ser Ala
3780 6485 6490 6495
3782 Gly Gln Ala Asn Tyr Ala Ala Gly Asn Ala Phe Leu Asp Ala Leu Ala
3783 6500 6505 6510
3785 Tyr His Arg Arg Ala Val Gly Leu Pro Ala Val Ser Leu Ala Trp Gly
3786 6515 6520 6525
3788 Pro Trp Ser Gln Asp Gly Gly Met Thr Gly Thr Leu Ser Asp Ala Asp
3789 6530 6535 6540

Same

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

3791 Val Gln Arg Ile Ala Arg Gln Gly Met Pro Pro Leu Thr Val Glu Glu
E--> 3792 545 6550 6555 6560
3794 Gly Leu Ala Leu Phe Asp Ala Ala Leu Gly Ser Ala Glu Pro Met Ala
3795 6565 6570 6575
3797 Leu Pro Val Arg Leu Asp Leu Ala Leu Arg Ala Gln Gly Glu Pro
3798 6580 6585 6590
3800 Gln Pro Leu Leu Arg Gly Leu Ile Arg Thr Pro Gly Arg Arg Thr Ala
3801 6595 6600 6605
3803 Ala Ala Ala Thr Glu Gly Asp Thr Ala Ala Ala Phe Ala Gly Arg Leu
3804 6610 6615 6620
3806 Thr Gly Leu Ser Ala Ala Glu Gly Arg Glu Val Val Leu Gly Ala Val
E--> 3807 625 6630 6635 6640
3809 Arg Ser Gln Ile Ala Gly Val Leu Gly His Ala Glu Ala Thr Glu Ile
3810 6645 6650 6655
3812 Asp Gln Asp Arg Ala Phe Leu Asp Leu Gly Phe Asp Ser Leu Thr Ala
3813 6660 6665 6670
3815 Val Glu Leu Arg Asn Arg Leu Gly Ala Val Thr Gly Ile Arg Leu Pro
3816 6675 6680 6685
3818 Ala Thr Leu Leu Phe Asp Tyr Pro Thr Pro Ala Glu Leu Val Ala His
3819 6690 6695 6700
3821 Leu His Ala Arg Ile Ala Pro Glu Pro Thr Val Gly Pro Glu Ala Leu
E--> 3822 705 6710 6715 6720
3824 Leu Gly Glu Leu Glu Arg Met Glu Lys Ser Phe Gly Gly Leu Asp Leu
3825 6725 6730 6735
3827 Thr Glu Glu Met His Glu Gln Ile Ala Gly Arg Leu Glu Val Leu Arg
3828 6740 6745 6750
3830 Ala Lys Trp Asp Ala Leu Arg Asp Thr Ala Ala Ala Gly His Asp
3831 6755 6760 6765
3833 Gly Ser Pro Ser Asp Glu Asp Phe Asp Phe Glu Ser Ala Ser Asp Asp
3834 6770 6775 6780
3836 Glu Val Phe Asp Leu Leu Asp Asn Glu Leu Gly Leu Ser
E--> 3837 785 6790 6795 *last amino acid*
3992 <210> SEQ ID NO: 6
3993 <211> LENGTH: 550 549 (p.25)
3994 <212> TYPE: PRT
3995 <213> ORGANISM: Streptomyces natalensis
3997 <400> SEQUENCE: 6
3998 Met Phe Glu Asn Gln His Leu Ser Arg Arg Arg Leu Leu Gly Leu Ala
3999 1 5 10 15
4001 Ala Leu Gly Gly Ala Ala Ala Gly Met Thr Thr Ile Thr Ser Ala
4002 20 25 30
4004 Pro His Ala Ala Ala Ala Asp Arg Arg Ser Pro Gln Ala Arg Ser Gly
4005 35 40 45
4007 Ser Phe Val Pro Ala Val Val Ile Gly Thr Gly Tyr Gly Ala Ala Val
4008 50 55 60
4010 Ser Ala Leu Arg Leu Gly Glu Ala Gly Ile Pro Thr Leu Met Leu Glu
4011 65 70 75 80
4013 Met Gly Gln Leu Trp Asn Lys Pro Ala Asp Asp Gly Asn Val Phe Cys
4014 85 90 95

Same

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Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

4016 Gly Met Leu Ser Pro Asp Arg Arg Ser Ser Trp Phe Lys Ser Arg Thr
 4017 100 105 110
 4019 Glu Ala Pro Leu Gly Ser Phe Leu Trp Leu Asp Val Ile Asn Arg Asp
 4020 115 120 125
 4022 Ile Asp Pro Tyr Ala Gly Val Leu Asp Lys Val His Phe Asp Gln Met
 4023 130 135 140
 4025 Ser Val Tyr Val Gly Arg Gly Val Gly Gly Ser Leu Val Asn Gly
 4026 145 150 155 160
 4028 Gly Met Ala Val Val Pro Lys Arg Ser Tyr Phe Glu Glu Val Leu Pro
 4029 165 170 175
 4031 Arg Val Asp Ala Ala Glu Met Tyr Asp Arg Tyr Phe Pro Arg Ala Asn
 4032 180 185 190
 4034 Ser Met Leu Lys Val Asn His Ile Asp Lys Gly Trp Phe Glu Glu Thr
 4035 195 200 205
 4037 Glu Trp Tyr Lys Phe Ala Arg Val Ser Arg Glu Gln Ala Gly Lys Ala
 4038 210 215 220
 4040 Gly Leu Gly Thr Thr Phe Val Pro Asn Val Tyr Asp Phe Asp Tyr Met
 4041 225 230 235 240
 4043 Arg Arg Glu Ala Asn Gly Glu Ser Pro Lys Ser Ala Leu Ala Thr Glu
 4044 245 250 255
 4046 Val Ile Tyr Gly Asn Asn His Gly Lys Gln Ser Leu Asp Lys Thr Tyr
 4047 260 265 270
 4049 Leu Ala Ala Ala Leu Gly Thr Gly Lys Val Thr Ile Glu Thr Leu His
 4050 275 280 285
 4052 Gln Val Arg Ala Ile His Gln Gln Pro Asp Gly Ser Tyr Val Leu Ser
 4053 290 295 300
 4055 Val Asp Gln Ile Asp Thr Ala Gly Gln Thr Val Ala His Lys Glu Ile
 4056 305 310 315 320
 4058 Ser Cys Arg His Leu Phe Leu Gly Ala Gly Ser Leu Gly Ser Thr Glu
 4059 325 330 335
 4061 Leu Leu Val Arg Ala Arg Asp Thr Gly Ala Leu Pro Asp Leu Asn Ala
 4062 340 345 350
 4064 Glu Val Gly Ala Gly Trp Gly Pro Asn Gly Asn Ile Met Thr Gly Arg
 4065 355 360 365
 4067 Ala Asn His Val Trp Asn Pro Thr Gly Ala His Gln Ser Ser Ile Pro
 4068 370 375 380
 4070 Ala Leu Gly Ile Asp Asp Trp Asn Asn Pro Thr Ala Pro Val Phe Ala
 4071 385 390 395 400
 4073 Glu Ile Ala Pro Met Pro Ala Gly Leu Glu Thr Trp Val Ser Leu Tyr
 4074 405 410 415
 4076 Leu Ala Ile Thr Lys Asn Pro Glu Arg Gly Thr Phe Val Tyr Asp Lys
 4077 420 425 430
 4079 Ala Thr Asp Arg Ala Ala Leu Arg Trp Thr Arg Asp Gln Asn Thr Pro
 4080 435 440 445
 4082 Ala Val Asn Ala Ala Arg Ser Leu Phe Asp Arg Ile Asn Lys Ala Asn
 4083 450 455 460
 4085 Gly Thr Met Tyr Arg Tyr Asp Leu Phe Gly Pro Gln Leu Lys Asn Phe
 4086 465 470 475 480
 4088 Ser Asp Asp Phe Cys Tyr His Pro Leu Gly Gly Cys Val Leu Gly Lys

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

4089 485 490 495
 4091 Ala Thr Asp Gly Tyr Gly Arg Val Ala Gly Tyr His Asn Leu Tyr Val
 4092 500 505 510
 4094 Thr Asp Gly Ala Leu Ile Pro Gly Ser Ile Gly Val Asn Pro Phe Val
 4095 515 520 525
 4097 Thr Ile Thr Ala Leu Ala Glu Arg Asn Ile Glu Arg Ile Ile Ala Glu
 4098 530 535 540
 4100 Asp Val Lys Ala Ala
 E--> 4101 545 550 ←
 4216 <210> SEQ ID NO: 8
 4217 <211> LENGTH: (399) 398 (p.26)
 4218 <212> TYPE: PRT
 4219 <213> ORGANISM: Streptomyces natalensis
 4221 <400> SEQUENCE: 8
 4222 Met Thr Tyr Thr Asp Pro Ala Ala Pro Glu Thr Asp Pro Pro Ala Val
 4223 1 5 10 15
 4225 Asp Phe Pro Gln Arg Lys Pro Gly Val Pro Phe Pro Pro Asp Tyr
 4226 20 25 30
 4228 Ala Asp Tyr Arg Asp Arg Lys Gly Leu Val Leu Ser Gln Leu Ser Asp
 4229 35 40 45
 4231 Gly Lys Arg Val Trp Leu Val Thr Arg His Glu Asp Val Arg Ala Val
 4232 50 55 60
 4234 Leu Thr Ser Pro Ser Ile Ser Ser Asn Pro Glu His Lys Gly Phe Pro
 4235 65 70 75 80
 4237 Asn Val Gly Asn Leu Gly Val Pro Lys Gln Asp Gln Ile Pro Gly Trp
 4238 85 90 95
 4240 Phe Val Gly Met Asp Ser Pro Glu His Asp Arg Phe Arg Lys Ala Leu
 4241 100 105 110
 4243 Ile Pro Glu Phe Thr Val Arg Arg Val Arg Ala Met Lys Pro Ala Ile
 4244 115 120 125
 4246 Glu Arg Thr Val Asp Ala Gln Leu Asp Ala Met Leu Ala Ala Gly Asn
 4247 130 135 140
 4249 Thr Ala Asp Leu Val Ala Asp Phe Ala Leu Pro Ile Pro Ser Leu Val
 4250 145 150 155 160
 4252 Ile Ser Ala Leu Leu Gly Val Pro Pro Ala Asp Arg Glu Phe Phe Glu
 4253 165 170 175
 4255 Ser Arg Thr Arg Val Leu Val Ser Leu Arg Ser Ser Thr Asp Asp Asp
 4256 180 185 190
 4258 Arg Met Ala Ala Ala Lys Asp Leu Leu Arg Tyr Ile Asn Arg Leu Val
 4259 195 200 205
 4261 Glu Ile Lys Gln Lys Trp Gly Gly Asp Asp Leu Ile Thr Arg Leu Leu
 4262 210 215 220
 4264 Ala Thr Gly Ala Ile Ala Pro His Glu Met Ser Gly Val Leu Met Leu
 4265 225 230 235 240
 4267 Leu Leu Ile Ala Gly His Glu Thr Thr Ala Asn Asn Ile Ala Leu Gly
 4268 245 250 255
 4270 Val Val Thr Leu Leu Ala Asn Pro Gln Trp Ile Gly Asp Asp Arg Ala
 4271 260 265 270
 4273 Val Glu Glu Thr Leu Arg Phe His Ser Val Ala Asp Leu Val Ser Leu

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

4274 275 280 285
 4276 Arg Val Ala Val Gln Asp Val Glu Ile Ala Gly Gln Leu Ile Lys Ala
 4277 290 295 300
 4279 Gly Glu Gly Ile Val Pro Leu Val Ala Ala Asn His Asp Glu Asn
 4280 305 310 315 320
 4282 Ala Phe Glu Cys Pro His Ala Phe Asp Pro Ser Arg Ser Ala Arg His
 4283 325 330 335
 4285 His Val Ala Phe Gly Tyr Gly Val His Gln Cys Leu Gly Gln Asn Leu
 4286 340 345 350
 4288 Val Arg Ile Glu Met Glu Val Ala Tyr Arg Lys Leu Phe Glu Arg Ile
 4289 355 360 365
 4291 Pro Asn Leu Glu Leu Ala Val Pro Thr Asp Gly Leu Asp Ile Lys Tyr
 4292 370 375 380
 4294 Asp Gly Val Leu Tyr Gly Leu Asn Glu Leu Pro Val Arg Trp ↴
 E--> 4295 385 390 395
 4410 <210> SEQ ID NO: 10
 4411 <211> LENGTH: 398 (397) (P.21)
 4412 <212> TYPE: PRT
 4413 <213> ORGANISM: Streptomyces natalensis
 4415 <400> SEQUENCE: 10
 4416 Met Thr Ala Ala Ser His Asp Leu Pro Cys Leu Asn Leu Glu Pro Pro
 4417 1 5 10 15
 4419 Lys Met Leu Lys Leu Ser Pro Leu Leu Arg Ala Leu Gln Asp Arg Gly
 4420 20 25 30
 4422 Pro Ile His Arg Val Arg Thr Pro Ala Gly Asp Glu Ala Trp Leu Val
 4423 35 40 45
 4425 Thr Arg His Ala Glu Leu Lys Gln Leu Leu His Asp Glu Arg Ile Gly
 4426 50 55 60
 4428 Arg Thr His Pro Asp Pro Pro Ser Ala Ala Gln Tyr Val Arg Ser Pro
 4429 65 70 75 80
 4431 Phe Leu Asp Leu Leu Ile Ser Asp Ala Asp Ala Glu Ser Gly Arg Arg
 4432 85 90 95
 4434 Gln His Ala Glu Thr Arg Arg Leu Leu Thr Pro Leu Phe Ser Ala Arg
 4435 100 105 110
 4437 Arg Val Leu Glu Met Gln Pro Lys Val Glu Glu Ala Ala Asp Thr Leu
 4438 115 120 125
 4440 Leu Asp Ala Phe Ile Ala Gln Gly Pro Pro Gly Asp Leu His Gly Glu
 4441 130 135 140
 4443 Leu Thr Val Pro Phe Ala Leu Thr Val Leu Cys Glu Val Ile Gly Val
 4444 145 150 155 160
 4446 Pro Pro Gln Arg Arg Ala Glu Leu Thr Thr Leu Leu Ala Gly Ile Ala
 4447 165 170 175
 4449 Lys Leu Asp Asp Arg Glu Gly Ala Val Arg Ala Gln Asp Asp Leu Phe
 4450 180 185 190
 4452 Gly Tyr Val Ala Gly Leu Val Glu His Lys Arg Ala Glu Pro Gly Pro
 4453 195 200 205
 4455 Asp Ile Ile Ser Arg Leu Asn Asp Gly Glu Leu Thr Glu Asp Arg Val
 4456 210 215 220
 4458 Ala His Leu Ala Met Gly Leu Leu Phe Ala Gly Leu Asp Ser Val Ala

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:29

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

| | | | | |
|-----------|--|--------|-----|-----|
| 4459 | 225 | 230 | 235 | 240 |
| 4461 | Ser Ile Met Asp Asn Gly Val Val Leu Leu Ala Ala His Pro Asp Gln | | | |
| 4462 | 245 | 250 | 255 | |
| 4464 | Arg Ala Ala Ala Leu Ala Asp Pro Asp Val Met Ala Arg Ala Val Glu | | | |
| 4465 | 260 | 265 | 270 | |
| 4467 | Glu Val Leu Arg Thr Ala Arg Ala Gly Gly Ser Val Leu Pro Pro Arg | | | |
| 4468 | 275 | 280 | 285 | |
| 4470 | Tyr Ala Ser Glu Asp Met Glu Phe Gly Gly Val Thr Ile Arg Ala Gly | | | |
| 4471 | 290 | 295 | 300 | |
| 4473 | Asp Leu Val Leu Phe Asp Leu Gly Leu Pro Asn Phe Asp Glu Arg Ala | | | |
| 4474 | 305 | 310 | 315 | 320 |
| 4476 | Phe Thr Gly Pro Glu Glu Phe Asp Ala Ala Arg Thr Pro Asn Pro His | | | |
| 4477 | 325 | 330 | 335 | |
| 4479 | Leu Thr Phe Gly His Gly Ile Trp His Cys Ile Gly Ala Pro Leu Ala | | | |
| 4480 | 340 | 345 | 350 | |
| 4482 | Arg Leu Glu Leu Arg Thr Met Phe Thr Lys Leu Phe Thr Arg Leu Pro | | | |
| 4483 | 355 | 360 | 365 | |
| 4485 | Glu Leu Arg Pro Glu Leu Pro Val Glu Gln Leu Arg Leu Lys Glu Gly | | | |
| 4486 | 370 | 375 | 380 | |
| 4488 | Gln Leu Ser Gly Gly Phe Ala Glu Leu Arg Val Val Trp | ← | | |
| E--> 4489 | 385 | 390 | 395 | |
| 4532 | <210> SEQ ID NO: 14 | | | |
| 4533 | <211> LENGTH: 20 | | | |
| 4534 | <212> TYPE: DNA | | | |
| 4535 | <213> ORGANISM: Artificial Sequence | | | |
| 4537 | <220> FEATURE: | | | |
| 4538 | <223> OTHER INFORMATION: Description of Artificial Sequence: Reverse primer ORF1 | | | |
| 4540 | <400> SEQUENCE: 14 | | | |
| 4541 | gcatgagcgt ggaaattccg | | | 20 |
| E--> 4553 | 50 | delete | | |

VERIFICATION SUMMARY
PATENT APPLICATION: US/10/018,009

DATE: 05/21/2002
TIME: 15:49:30

Input Set : N:\jumbos\huge\10018009.raw
Output Set: N:\CRF3\05212002\J018009.raw

L:10 M:270 C: Current Application Number differs, Replaced Application Number
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:691 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
M:332 Repeated in SeqNo=2
L:844 M:252 E: No. of Seq. differs, <211> LENGTH:Input:1848 Found:1847 SEQ:2
L:2757 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:4
M:332 Repeated in SeqNo=4
L:3837 M:252 E: No. of Seq. differs, <211> LENGTH:Input:6798 Found:6797 SEQ:4
L:3989 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:5
L:4101 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:6
L:4101 M:252 E: No. of Seq. differs, <211> LENGTH:Input:550 Found:549 SEQ:6
L:4295 M:252 E: No. of Seq. differs, <211> LENGTH:Input:399 Found:398 SEQ:8
L:4489 M:252 E: No. of Seq. differs, <211> LENGTH:Input:398 Found:397 SEQ:10
L:4553 M:254 E: No. of Bases conflict, this line has no nucleotides.